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B2B FALLOUT

Those that survive the dot-com boom that's now going bust are expected to thrive. Page 42

SCHMOOZING IT UP

We find the spots in Silicon Valley where job-hunting, deal-seeking technologists *need* to be seen. Page 48

LOCKDOWN BLUES

Security measures rise as many as they protect, finds security manager Mathias Thurman. Page 58

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WIRELESS GAINS MARKET MOMENTUM

Pocket PC emerging as Palm challenger

BY BOB BREWIN

Say "thank you" to corporate users, Microsoft.

The software giant's Pocket PC has gained enough momentum since its introduction a year ago that analysts predict that it will seriously challenge the hold rival Palm Inc.

and its partners have on the handheld market. And it's Microsoft Corp.'s enterprise users who are largely responsible.

Analysts still expect Palm to maintain its lead for the foreseeable future; there are about

Pocket PC, page 79

Java top choice of wireless developers

BY LEE COPELAND GLADWIN

Developing applications for wireless devices is rife with challenges, including proprietary device operating systems, insufficient standards and usability issues. Nonetheless, such development is on the rise, and Java is the language of choice, according to a new report.

The study, from Evans Data Corp., a market research firm in Santa Cruz, Calif., reported that 30% of 521 developers surveyed plan to use Sun Micro-

Java, page 79

MOBILE IT

HOSPITAL MOVES INTO ASP NICHE

Braves economic slump by spinning off IT unit

BY JULEKHA DASH

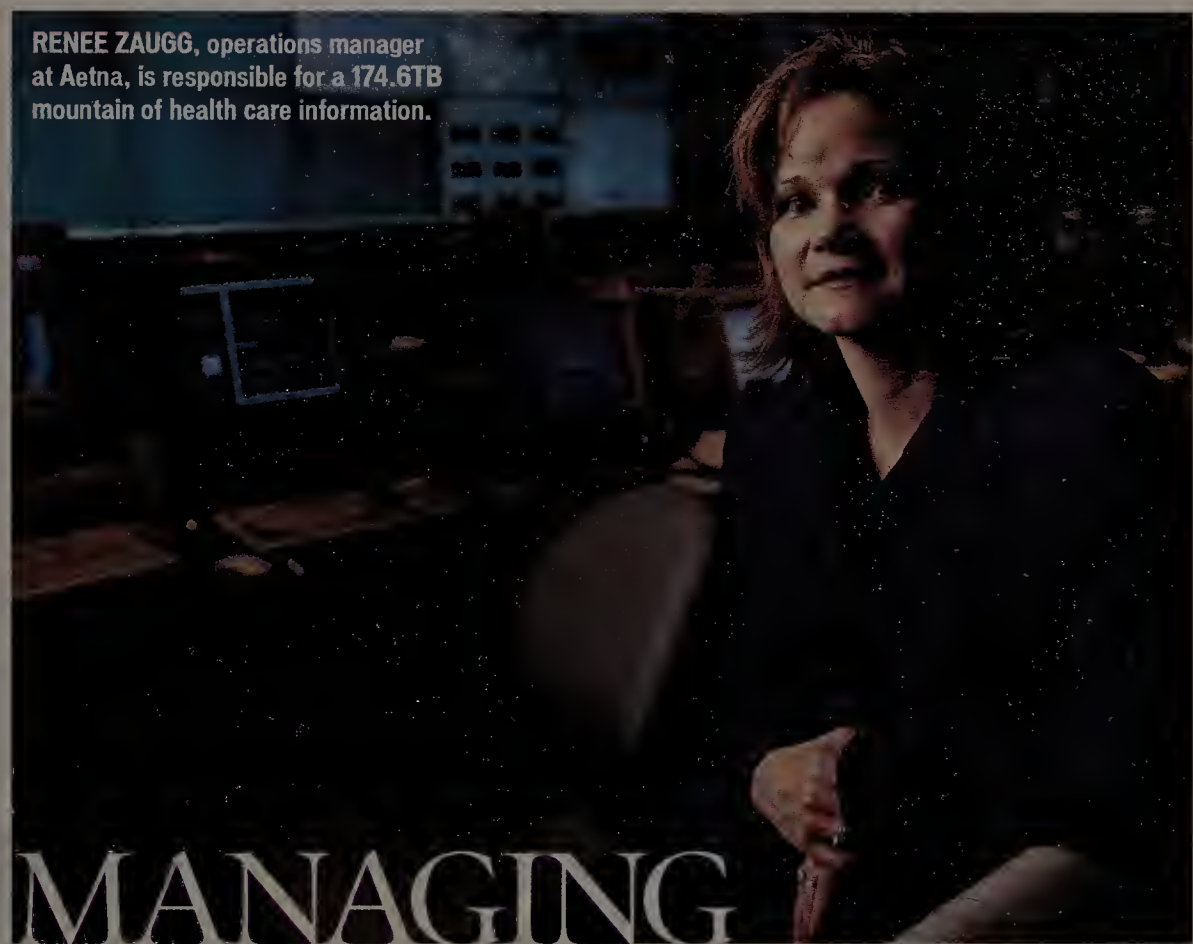
Tight budgets and the difficulty of retaining staff in a low-paying industry have pushed many New York hospitals to outsource their IT departments. But Maimonides Medical Center in Brooklyn hopes

to tackle those problems by doing the exact opposite: turning its IT unit into an outsourcer — and a profit center.

This month, the medical center launched Technology 4 Healthcare LLC, which Maimonides CIO Ann Sullivan estimates will generate \$80 million in revenue within four years. Armed with \$6 million in funding from an equity partner, Sullivan's group plans to eventually add 125 employees to its 85-person staff. It will serve both the hospital and

Hospital, page 16

RENEE ZAUGG, operations manager at Aetna, is responsible for a 174.6TB mountain of health care information.



MANAGING TONS OF DATA

IT'S CUMBERSOME AND UNWIELDY. In fact, managing terabytes of data is a thousand times more complex than managing gigabytes of information — just doing backup is a scary prospect. But companies such as Aetna, Boeing and AT&T are finding ways to effectively control massive databases that range from 50TB to 300TB of corporate assets.

Story begins on page 62.

MICROSOFT COURTS VERTICAL B2Bs

Tech's RosettaNet among first to get BizTalk add-on

BY CAROL SLIWA

The RosettaNet consortium needs to attract smaller companies to its XML-based business-to-business trading network to reach its eventual goal of reducing inventory, transaction costs and time to market.

That's why RosettaNet CEO Jennifer Hamilton was pleased to see Microsoft Corp. last

week unveil a RosettaNet add-on to its core BizTalk Server 2000 product, which helps companies translate or map data from one format to another and deliver messages securely and reliably.

A major impediment to luring smaller partners to one of the first vertical industry efforts has been the lack of low-cost, easy-to-implement turnkey software to help drive "the next tier of the supply chain" in the technology, electronics

component and semiconductor industries, Hamilton said last week, speaking at the RosettaNet Partner Conference in Anaheim, Calif.

Business-to-business integration packages have typically cost \$100,000 to \$500,000, she said. "There was a recognition that we were probably going to have to get turnkey solutions in the \$20,000 to \$50,000 range to get medium-size companies," she explained.

The BizTalk Server Accelerator for RosettaNet, due this summer, will sell in the range

RosettaNet, page 16



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SUPERCONDUCTOR BREAKTHROUGH

Scientists at Bell Labs, including Ananth Dodabalapur (left) Zhenan Bao, have developed the first plastic superconductor, which promises to be less expensive and easier to use than superconductors based in other materials. Page 60

BEYOND THE 'GREEN' OF THE EMERALD ISLE



In Ireland, IT managers such as Mike Campbell (above) have discovered that - as in the U.S. - money isn't the only thing that draws talent to Old Economy companies. Page 46

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- 7 LAYOFF POLICIES** are essential if companies want to avoid lawsuits and maintain morale, say experts.
- 8 ANOTHER INTERNET** security alliance is born, raising questions of duplicated effort and coordination among the many groups.
- 8 COMPUTER CRIME** against federal agencies is under-reported because of inadequate detection and cultural barriers.
- 10 UNISYS LAUNCHES** new high-end servers in hopes of reviving sales.
- 10 NEW YORK LIFE** becomes the latest major corporation to name a chief privacy officer.
- 12 MANAGING CUSTOMER** relationships means using software from multiple vendors, not just one, users find.
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ONLINE

In the **E-Commerce Community**, member C.J. Rhoads, vice president of Bethesda, Md.-based Commerce-Links.Net, warns business leaders that the bursting of the dot-com bubble doesn't mean businesses can forget about the Web for a while. www.computerworld.com/community/ecommerce

The authors of the book *Mission-Critical Active Directory* (Digital Press, 2000), Jan De Clerq and Micky Balladellis, outline the steps needed for a successful **Active Directory** migration. www.computerworld.com/community/os

For more news, analysis, technical information, events and Web resources about databases, head to our new **Resource Centers on Data Management** — at www.computerworld.com/datacenter — and **Storage** — at www.computerworld.com/storagecenter.

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the strength of the Internet is to blame for the current dot-com doldrums.

- 32 MICHAEL GARTENBERG** says IT departments shouldn't shun users' requests for the fashionable laptops that have caught his eye.
- 36 KEVIN FOGARTY** denies that the economy is a disaster, but he says returning to normality can be painful.

- 39 ED YOURDON** writes that IT professionals don't have enough time to just think about what they're doing.
- 52 JOE AUER** advises IT buyers not to let vendors decide if your support is satisfactory.
- 80 FRANK HAYES** believes the .govs aren't the only Web sites that have to stick to rules, but he wonders how many business sites really know that.

AT DEADLINE

Surveys: Dell Tops Compaq Worldwide

Dell Computer Corp. assumed the No. 1 ranking in the worldwide PC market for the first quarter. The company beat out rival Compaq Computer Corp. for the first time, according to surveys released Friday by Framingham, Mass.-based IDC and Dataquest, a unit of Stamford, Conn.-based Gartner Inc. According to Dataquest, Dell was able to outdistance other companies because it could pass on component price cuts to its customers faster than its competitors due to a more efficient supply chain. According to IDC, Dell pulled ahead in sales on the strength of "its heavier commercial mix and garroting pricing strategies."

Earnings Reports

MICROSOFT CORP. credited sales of Windows 2000 Professional and a reorganization of its sales force for helping it turn in a 14% increase in revenue and a 3% profit gain during its fiscal third quarter. . . . **SUN MICROSYSTEMS INC.** reported that its fiscal third-quarter net income fell from \$464 million last year to \$263 million on a pro forma basis. Sun attributed the results to "a sharp decline" in overall IT spending. . . . **SAP AG** said its first-quarter net profit more than doubled, rising to \$104 million from last year's level of \$49.7 million. . . . **APPLE COMPUTER INC.** blew away analysts' forecasts, reporting second-quarter income of \$40 million, excluding non-recurring charges, with international sales accounting for nearly half of the company's business. . . . **IBM** met expectations for the quarter, reporting a profit of \$1.75 billion, up 15% from \$1.52 billion during the same period a year ago. Revenue grew 9% to \$21 billion. IBM's professional services division grew 21% during the quarter. . . . **Stockholm-based LM ERICSSON TELEPHONE CO.** said it will cut as many as 12,000 jobs worldwide, or 11% of its workforce, as part of a broad cost-cutting campaign. The company said net income in the first quarter dropped 90% and that overall sales are down 5%, compared with the same period a year ago. . . . **Es-poo, Finland-based NOKIA CORP.** beat its own expectations for the first quarter, reporting a net profit of \$940 million.

Sun/IBM Face-off May Benefit Users

Some users report better prices, services as Unix vendors battle for market share

BY JAIKUMAR VIJAYAN

THE TUSSLE for market share between IBM, which last week introduced new Unix servers, and Sun Microsystems Inc. could mean better deals for customers in the months ahead, analysts said.

But users shouldn't evaluate the two companies based only on the competing price and performance claims being bandied about by the vendors, analysts added.

IBM last week claimed that its two new midrange Unix servers — the p620 and the p660 — offer substantially greater performance at much lower prices than comparable systems from Sun.

The systems are the first midrange IBM servers to feature the company's silicon-on-insulator technology, as well as self-management and main-frame-class error-correction capabilities, which result in a 35% performance boost without additional cost, said Michael Kerr, an IBM vice president.

Sun declined to comment on IBM's claims. But Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H., said that while IBM's new boxes may have the same raw performance as comparable Sun servers, they don't have the same redundancy or built-in scalability.

Meanwhile, as previously planned, Sun last week cut prices on several of its server configurations to make way for its new UltraSPARC III-based systems, which are due to start shipping in volume later this year.

Prices for the Sun's UltraSPARC II-processor-based Sun Enterprise 3500 to 6500 servers were reduced by as much as 16%. For example, the price of a Sun Enterprise 6500 system with 24 processors and 48GB of memory was cut from

\$874,000 to \$775,000, or by 11.3%. Sun also dropped prices on its Enterprise 10000 server by as much as 16%.

While Sun's price cuts are related to its UltraSPARC III systems, they're also part of the company's increasingly bitter turf war with IBM, according to Eunice.

Sun had a 45% growth rate from 1999 to 2000 in worldwide server revenue. It also had a higher U.S. server revenue last year, with \$4.78 billion in sales, compared with IBM's \$4.69 billion, according to Stamford, Conn.-based Gartner Inc.'s Dataquest unit. But IBM shipped more units in the U.S. last year, selling 239,612 servers while Sun sold 139,243.

"IBM continues to be a tremendous thorn in Sun's side [because] their systems are strong and their pricing is aggressive," Eunice said.

As a result, "both the vendors are obviously very sensitive to what the other is doing,"

AT A GLANCE

AIX 5L

In addition to new servers, IBM also released AIX 5L last week. The Unix software includes the following features:

- **Linux affinity:** Allows Linux applications to run on AIX with recompile
- **Increased scalability:** Offers support for up to 32 processors and 256GB of memory
- **Better e-business support:** Virtual IP addressing helps application availability
- **Enhanced system management:** Includes an automated system monitoring and resource usage measuring tool

said Joyce Becknell, an analyst at Boston-based Aberdeen Group Inc.

The good news, from a user perspective, is better prices, more aggressive discounts and better services all around, Eunice said.

"I think they are going to go blow for blow," said Bob Plamondon, a senior director of global IT services delivery at Cable & Wireless PLC, a telecommunications services firm with U.S. headquarters in Vienna, Va.

The company, which uses

many Sun servers, last year purchased a high-end IBM Unix server to run a crucial data warehousing application.

As part of the deal, IBM trained four Sun Solaris administrators to work with IBM's AIX Unix, explained Plamondon. "It was a big help, because we had no AIX skills," he said.

So far, IBM claims to have trained 1,000 Solaris server administrators and taken more than \$150 million in business away from Sun as a result of its AIX for Solaris Administrators project.

"They were extremely competitive with each other," noted Kevin Smith, CEO of New York-based start-up MDOffices Inc., which recently purchased IBM's new servers to host an application that enables physicians to transmit prescriptions and other medical information via wireless devices.

MDOffices had planned to host its services on Sun equipment but opted for IBM because the company offered a better lease option, he said.

IBM "offered us an opportunity to get the kind of equipment we needed as a start-up, on a lease arrangement where we didn't have to pay anything for six months," Smith said.

The company is currently installing IBM's new servers but will continue to test its applications on Sun equipment as well, he added. ▀

Outsourcing Firm Expands With CIO-for-Hire Venture

BY MICHAEL MEEHAN

The CIO-for-hire ranks swelled last week as financial management services firm Tatum CFO Partners LLP announced that it has formed a CIO outsourcing venture.

The 8-year-old firm entered the CIO business in December but opened its Tatum CIO Partners LLP organization just last week, with offices established in Atlanta, Chicago, New York, Dallas and Pittsburgh.

CEO David Christopher said Tatum will offer companies the use of executives with previous CIO experience for either limited or long-term guidance of corporate IT departments.

"We don't bring anyone on board who hasn't been through the mill," he said.

The idea isn't new. Charles Feld, founder, president and CEO of The Feld Group in Irving, Texas, has provided CIO staffing for Delta Air Lines Inc., First Data Corp. and Burlington Northern Santa Fe Corp.

Barbara Steinem, president of Leesburg, Va.-based executive management firm Dahl Morrow International, said the demand for executives-for-hire has been growing.

"Companies are in such a state of flux, they're increasingly willing to look outside their walls for guidance," she said.

John Thompson, former chairman of Stamford, Conn.-based executive search firm Imcor Inc. and author of *The Portable Executive*, said companies need to buy "talent on demand."

"When something comes up, I've got to get it done," he said. "If I don't get the expertise, I'm dead. In practice, they're doing it because they have to."

Thompson said the rented CIO idea makes particular sense for large projects.

"You bring in the hired guns to manage the implementation, and then you can get someone to run the day-to-day stuff afterward," he said. "It's hard to do both if the project's a big one."

Christopher said Tatum will make CIOs available on either a part-time or a full-time basis, depending on what clients need. ▀

Employers Strengthen Layoff Packages to Avoid Lawsuits

Staffing expert says 'humane' policies can also be key to maintaining morale

BY JULEKHA DASH

As economic pressures prompt a growing number of firms to trim their IT workforces, many are firming up their layoff strategies — a move that could be key to preventing lawsuits and maintaining morale, according to labor attorneys and workforce consultants.

"Conducting a layoff that's as humane as you can possibly do it is essential for maintaining morale," said John Challenger, CEO of Chicago-based outplacement firm Challenger, Gray & Christmas Inc.

In general, employees file lawsuits when they feel management has treated them unfairly, but that can be somewhat mitigated by better exit deals, said Gary Friedman, a partner at employment law firm Mayer, Brown & Platt in New York.

"There's a direct correlation between generosity and litigation," said Friedman.

In order to avoid a lawsuit, employers should check to see if they are governed by the Worker Adjustment and Retraining Notification Act, which states that companies with 100 or more employees (among other conditions) must give 60 days' notice before mass

layoffs or plant closings, according to Raymond Hixson, a labor attorney at Fenwick & West LLP in Palo Alto, Calif.

To avoid discrimination lawsuits, companies should document why certain employees were targeted and make sure the layoffs won't affect a disproportionate number of women, minorities or older workers, said Hixson.

Employers often run into lawsuits when they provide inconsistent reasons for terminating employees, he noted.

"A jury can infer that [the company] is lying to cover something up," said Hixson.

Typically, companies offer a minimum of two weeks' severance pay, health insurance and outplacement services, with extra compensation commensurate with employees' length of service.

Employees are usually given at least two weeks' notice, but companies may have to ask them to leave immediately if they have access to confidential client information.

That was the case at New York-based accounting and consulting firm PricewaterhouseCoopers, which announced two weeks ago that it

would be dismissing as many as 1,000 U.S.-based consultants.

At Schaumburg, Ill.-based Motorola Inc., employees who are laid off may be permitted to stay at the company for as many as 90 days after being terminated, but those who have access to competitive intelligence may have to leave the day they're notified, said spokeswoman Margot Brown.

Typically, during the first wave of layoffs, companies will try to reduce head count through attrition and other voluntary programs before forcing staff to leave, said David Foote, a managing partner at human resources consultancy Foote Partners LLC in

New Canaan, Conn., and a *Computerworld* columnist.

"Nobody wants to admit to a layoff," he said. But "no one has any public relations problem at all" announcing voluntary exit packages, he added.

Two weeks ago, Datek Online Brokerage Services LLC in Iselin, N.J., said it would offer two months' salary and medical benefits, plus an additional month for every year of service, to customer support representatives who would leave voluntarily.

Datek spokesman Michael Dunn said it's too early to comment on the plan's success.

Similarly, The New York Times Co. plans to offer voluntary buyouts to some of its employees during the next two to three months, said spokesman Toby Usnik. ■

Videoconferencing Getting Easier, Cheaper

Beta users pleased with PictureTel's new \$7,000 unit

BY JAMES COPE

Although videoconferencing systems are widely used in large corporations, the kludginess factor has been difficult to overcome. The systems have generally been expensive, bulky and difficult to set up and operate, users say.

But two beta users of PictureTel Corp.'s 600 Series videoconferencing system, which the Andover, Mass.-based company introduced last week, indicated that the \$7,000 system may make videoconferencing viable in many more corporate conference rooms.

Bud Parer, information systems manager for the electromechanical automation group at Cleveland-based Parker Hannifin Corp., said he has been testing the PictureTel system to link two company conference rooms. One is in Rohnert Park, Calif., where Parer is located; the other is in a Parker Hannifin facility in Milford, Ohio.

The 600 system, which was jointly developed by PictureTel and Intel Corp., comprises a compact Intel 566-MHz Celeron-based PC, a video



THE PICTURETEL 600 can display information from PC applications without shutting down voice and video connections.

camera and a microphone. The unit, which can be used in conjunction with a video projector, operates over standard Integrated Services Digital Network telephone lines or over IP-based networks.

Parer said his company's PictureTel 600s use IP on an Ethernet connection that taps into a T1 line.

"We dedicated a room in both facilities," Parer said. "[The videoconferencing systems] are on all of the time. It's like a virtual hallway between California and Ohio."

Analyst Christine Perey at Perey Research & Consulting in Placerville, Calif., said the PictureTel 600 offers what many businesses want. "They want both a small footprint

and the simplicity of an appliance," she said.

Chris DiFiglia, vice president of IT at Bear, Stearns & Co. in New York, said his company tested the PictureTel 600 for use in the worldwide headquarters Bear, Stearns is building in Manhattan.

DiFiglia said the company plans to migrate to PictureTel equipment worldwide, replacing existing videoconferencing equipment from an unspecified vendor.

But if a company wants a videoconferencing system for a large conference setting, the 600 isn't the way to go, DiFiglia noted. "I see it as a fit in between traditional desktop videoconferencing and full-blown room systems," he said.

Parer agreed. "It works best for videoconferences involving 10 people or less," he said.

Parer said users can plug their laptop computers into a video port on the PictureTel 600, which allows them to display information from PC applications in a small window of the video screen. Parker Hannifin engineers have been using this feature to share computer-aided-design drawings, he said.

The 600 employs compression algorithms from PictureTel's proprietary Siren 14 audio technology, which minimizes voice delay and produces high-quality sound, according to company officials.

"The audio quality on the system is a hell of a lot better than anything I've seen," Parer said. He noted that on some videoconferencing systems, it's difficult to have a "real conversation" because "you talk and then halt" to wait for others to speak.

The PictureTel 600 competes with the ViewStation series of videoconferencing appliances from Polycom Inc. in Milpitas, Calif. A Polycom spokeswoman said the ViewStation series, which is priced at \$6,000 to \$9,000, is based on proprietary technology, with no hard drive required. The Intel-based PictureTel 6000 runs Microsoft Corp.'s Windows 2000 operating system.

PictureTel officials said the 600 will begin shipping late this month. ■

Layoff Strategies

Layoff policies vary from company to company. Here are some highlights:

MOTOROLA Salaried employees typically get a minimum of one month's severance pay, health benefits and outplacement services, plus two weeks' additional compensation if they agree not to sue.

AMAZON.COM Salaried employees had to sign a "non-disparagement" clause in the wake of labor disputes in order to collect larger severance packages.

DATEK ONLINE The company offered a voluntary exit package, including two months' severance and an additional month's pay for each year of employment, plus health benefits.

As Another Security Coalition Launches, Some Ask Why

Concerns include duplication, role of government-funded group in for-fee service

BY DAN VERTON
WASHINGTON

ANOTHER coalition of private-sector companies has joined the battle to beef up security on the Internet, raising concerns about coordination and duplication of effort.

The CERT Coordination Center (CERT/CC) at Carnegie Mellon University in Pittsburgh last week announced a joint effort with the Electronic Industries Alliance (EIA) to form a fee-based service that will offer companies advance warnings on Internet security threats as well as education, training and help in developing security best practices.

Members of the joint venture, known as the Internet Security Alliance (ISA), will pay \$70,000 annually for sponsor membership that will provide them the full range of services, including access to the CERT/CC's knowledge base. Companies that don't need the full range of services can opt to pay for just the early-warning service, which will cost \$2,500 to \$50,000, depending on the size of the company.

While observers generally agree that any attempt to rally the industry behind improving Internet security is a good thing, some analysts said they don't see a critical need for another industry group and questioned the involvement of the government-funded CERT/CC in the fee-based service.

"Was there a crying need for this? No," said John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc.

At a press conference last week, Dave McCurdy, president of the EIA and the newly appointed executive director of the ISA, stressed that the ISA isn't a duplicate of other public and private information sharing groups. "What we are offering is a multisector, global organization," said McCurdy. Unlike other groups, the ISA is

"fully operational and on the Web," he said. "We're not just a group of security vendors saying, 'Let's just talk to ourselves.' We're really looking to be developing best practices... and real solutions."

The CERT/CC, formerly the Computer Emergency Response Team, receives \$3.5 million per year from the government to study and report on Internet security threats. The EIA is a trade group of more than 2,100 global telecommunications and electronics companies. The ISA currently has more than a dozen member companies, including Nasdaq Stock Market Inc., Mellon Fi-

nancial Corp. and American International Group Inc., the largest U.S.-based global insurance company.

Duplication of Efforts?

Reporters at the press conference asked McCurdy about the perception that the ISA is duplicating work being done by the Partnership for Critical Infrastructure Security, a private-sector group that has spearheaded the formation of four information-sharing and analysis centers (ISAC) in different sectors of the economy.

McCurdy, however, downplayed the information-sharing aspects of the problem facing private-sector companies, calling it "not even half the

problem." He also criticized the government's efforts by showing a slide depicting a disorganized multitude of agencies currently involved in Internet security. "[Internet security] needs to be business-led," he said. "It should not be led by government."

Further clouding the picture is the fact that at least two of the ISA's charter members, Nasdaq and Mellon Financial, are also members of the financial services sector that ISAC set up through the Partnership for Critical Infrastructure Security.

Larry Bickner, vice president of information security at Nasdaq, said he isn't concerned about the number of groups that exist and doesn't

think they will hamper one another's information sharing initiatives.

Steven Aftergood, an analyst at the Federation of American Scientists, said that in addition to the ISA appearing to duplicate efforts, the participation of CERT/CC raises questions about the use of government money. "I'm less offended by duplication of effort than by the appearance of misappropriation of taxpayer dollars," said Aftergood. "On its face, it seems inequitable to the taxpayer," he said, questioning whether or not a government-funded entity should be giving preferential treatment to paying customers.

According to McCurdy, however, "the government is a customer [of the CERT], and businesses that join will be customers." The government, he said, will continue to receive the same level of support it always has from the CERT. He also said additional personnel would be hired to support the added corporate customers. ▀

MOREONLINE

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www.computerworld.com/security

Feds' Math Is Fuzzy on Computer Crime

Key agencies don't report statistics

BY PATRICK THIBODEAU
WASHINGTON

The federal government can report in exacting detail the number of bank robberies committed in any given year. But when it comes to computer crimes against government agencies, it's close to clueless.

Government officials esti-

mate that only 20% of computer crime incidents are being reported because the agencies either don't have the technical sophistication to discover the crimes or they want to keep bad news quiet. It's for those reasons that the 155 root compromises to federal computers reported last year likely represent a fraction of the actual number.

"It's a serious issue," said Jim Craft, information security officer at the U.S. Agency for

International Development and head of the CIO Council's best practices subcommittee on security.

Lack of Resources, Teamwork

Craft said senior managers fear the unwelcome attention that computer crime reports bring and in many cases lack the money and tools to detect or fight computer crime. But there's also an ingrained reluctance for agencies to work together, he said.

"We don't have a culture of collaboration in the federal government," said Craft. "We can't even get people sometimes to share good news."

For the first three months of this year, the government's central crime data repository, the Federal Computer Incident Response Center (FedCIRC), recorded 55 root compromises at civilian nondefense federal agencies — putting it on pace to exceed last year's total. A root compromise occurs when an intruder gains systems administration privileges, such as the ability to copy documents, alter data or plant malicious code.

Still, it's impossible to gauge just what the first-quarter increase means, say experts.

"We don't know whether we're seeing a change in the rate of reporting, a change in the rate of detection or a change in the rate of penetration," said Michel E. Kabay, a computer security expert at consulting firm Atomic Tangerine Inc. in Menlo Park, Calif., who has done research on computer crime statistics.

For its part, the Bush administration has begun to take steps to improve compliance by federal agencies in reporting and responding to security breaches, including recommending a 38% boost in funding, from \$8 million to \$11 million, for FedCIRC. Agencies are already required by law to report to FedCIRC as a result of the Government Security Reform Act approved last year.

But Sallie McDonald, an assistant commissioner at the General Services Administration, which runs FedCIRC, said she recognizes that it takes time to gain agency cooperation.

Nonetheless, "I would hope that we don't have to go through a tremendous [data] loss in order to start complying with the things that we should be doing," she said. ▀

Believe It or Not

Federal officials believe that root compromises of government systems are on the rise. One reason for this is the increase in available tools used by intruders. But accurate statistics on break-ins aren't available.

THE LAW Federal agencies are required to report computer break-ins.

THE REALITY For the same reasons as in the private sector, many agencies don't report break-ins. Some don't know they have been hacked. Others fear negative attention.

THE PLAN The Bush administration is boosting security funding and requiring agencies to give the White House their security statistics as part of their budget requests.

WHAT'S AT RISK With few exceptions, federal officials won't reveal which agencies are being hacked and what's going out the door.



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BRIEFS

FTC Sues Online Information Brokers

The Federal Trade Commission (FTC) last week said it has filed lawsuits aimed at halting the operations of three online information brokers that offer to locate personal financial information, such as bank balances, in return for fees. The FTC is accusing the three data brokers of obtaining the information under false pretenses, an illegal practice known as pretexting. The FTC commissioners voted 3-2 to file the suits, with the dissenters citing insufficient grounds. The suits target the owners of Information Search Inc. in Baltimore, Smart Data Systems in Staten Island, N.Y., and Discreet Data Systems in Humble, Texas. The FTC said the cases are the result of an ongoing investigation into thousands of Web sites.

Suit Filed Against Cell-Phone Makers

A Baltimore attorney who achieved legal fame with victories over asbestos manufacturers and tobacco companies has set his sights on cell-phone makers. Peter Angelos last week filed class-action lawsuits against Motorola Inc., Verizon Wireless and 23 other wireless companies in Maryland, Pennsylvania, New Jersey and New York. The lawsuits charge that the companies knew of health risks to cell-phone users but failed to warn them. Among other things, the lawsuits seek to require the companies to provide free earpieces for every cell phone and reimburse people for the cost of earpieces they purchased.

Best Buy Picks AT&T For Integrated Net

AT&T Corp. and retailer Best Buy Co. in Eden Prairie, Minn., said last week that Best Buy will use AT&T's Integrated Network Connection Service (INCS) to provide voice and data communications for its 419 stores. INCS consolidates different types of communications through a single service and allows corporate subscribers to dynamically allocate unused bandwidth to applications that need it most at any time. The companies described the arrangement as a multimillion-dollar deal.

New York Life Names Chief Privacy Officer

New medical rules may prompt more such appointments

BY MARIA TROMBLY

New York Life Insurance Co. last week joined the likes of American Express Co. and Provident Financial Corp. by naming a chief privacy officer (CPO) to uphold privacy standards and procedures.

The new CPO, Thomas Warga, is a senior vice president at New York Life. He's also in charge of audit and compliance activities, as well as the office of business conduct.

New York Life, a Fortune 100 company, is one of the largest insurers in the country. It recently revised its privacy policy to meet new federal and state privacy laws and will mail copies of the updated policy to customers and subsidiaries later this month. Warga said the company's previous privacy policy was only an internal document.

Warga said he was picked for the job because his experience in auditing and compliance has given him an enterprisewide perspective.

"Also, over the years, I've been able to develop contacts and working relationships with all the managers of all the business units," he said.

Those contacts include relationships with IT managers.

Warga said he plans to work closely with the chief information security officer, who reports to the CIO, to ensure that the security and privacy policies complement and support each other.

There are now between 200 and 300 CPOs in the U.S., according to Alan Westin, head of the Association of Corporate Privacy Officers in Hackensack, N.J. That number may jump to the thousands in the next couple of years, he said.

"Under the Health Insurance Portability and Accountability Act, every entity covered must designate an official to develop and implement privacy policies," said Westin. "That's 60,000 entities."

In Europe, where privacy standards are stricter than in

the U.S., there are already thousands of privacy officers; for example, there are 2,000 data protection officers in Germany and 1,200 in Sweden, Westin said.

Privacy proponents have warned, however, that the recent wave of corporate CPO appointments shouldn't distract the nation from the need

for even stricter privacy laws.

"What good does a chief privacy officer do if there are no laws?" asked Edmund Mierzewski, consumer program director at the U.S. Public Interest Research Group in Washington. "The laws we have aren't good enough, particularly in the insurance business." ■

JUST THE FACTS

CPO Duties

A chief privacy officer's responsibilities include:

- Tracking pending legislation
- Staying up-to-date on new technologies
- Ensuring, via direct contact with senior managers, that his company's strategic efforts are in alignment with legal and technical developments

SOURCE: SURVEY BY PRICEWATERHOUSECOOPERS, NEW YORK

Unisys Pins Hopes On New Servers

ClearPath lets users run both Windows and proprietary applications in same box

BY JAIKUMAR VIJAYAN

UNISYS CORP. last week announced new versions of its mainframe-class ClearPath servers, amid news of a 35% decline in first-quarter profit caused by slow sales of the company's enterprise systems.

The new e-@action ClearPath servers incorporate Unisys' cellular multiprocessing technology, which allows users to mix applications running on Intel Corp. technology with those running on proprietary Unisys processors in a single box.

The goal is to give users a way to continue taking advantage of their existing investments in proprietary Unisys environments while offering a reliable, mainframe-class system for running newer applications, said Kevin McHugh, a vice president at the Blue Bell, Pa.-based company.

For example, a bank that wanted to offer Windows-based Internet services would be able to host it in the same box in which it's running other banking applications based on Unisys' proprietary operating system, making for tighter integration and time-to-market, McHugh said.

"The new systems are a natural evolution for Unisys," said John Phelps, an analyst at

Stamford, Conn.-based Gartner Inc.

"It shows their loyal legacy systems clients that [Unisys] hasn't fully gone over to worrying just about Unix and Windows systems," he added. "It gives them upgradability and capabilities for better price performance."

Unisys also introduced a "capacity-on-demand" pricing model based on its ClearPath

servers. With it, users will be able to buy more computing capacity than they presently need and pay for it only when it's actually used. The intent is to give users a flexible way to buy extra capacity for unpredictable application demands and sudden emergencies, McHugh said.

Struggling for Market Share

The new servers come at a crucial time for Unisys. The company exited the commodity hardware business last year and has been repositioning itself in the past few years as a services-led operation, although it still gets a chunk of its revenue from hardware sales.

Weak demand for both its ClearPath servers and its newer ES7000 line of 32-processor systems contributed to lower-than-expected first quarter results for Unisys. The outlook for the next quarter isn't much better as a result of the weak economic climate, CEO Lawrence Weinbach warned in a statement last week.

While servers such as those announced last week should extend the life of Unisys' ClearPath systems, the question is for how long, said Rob Schafer, an analyst at Stamford, Conn.-based Meta Group Inc.

"They just don't have the critical mass to justify [making their own chips] for much longer," Schafer said. As a result, "our view is not a question of if, but when Unisys will migrate away" from its proprietary technology, he added. ■

ClearPath Plus Features

Unisys last week announced two new ClearPath models.

CS7802 ClearPath Plus:

- Supports up to 32 processors
- Supports both Intel and Unisys chips in same box
- Allows dynamic allocation of resources depending on computing workloads

CS7101 ClearPath Plus:

- Supports up to 32 Intel processors
- Supports both the Unisys MCP operating system and Windows
- Dynamic partitioning is available



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FTC Fines Kid Sites For Privacy Violations

More cases to come in crackdown citing online privacy law

BY LINDA ROSENCRANCE

Almost a year to the day after a law limiting the ability of Web sites to collect personal data from children took effect, the Federal Trade Commission (FTC) last week levied the first fines against several companies for violating the measure.

The FTC said Monarch Services Inc. and Girls' Life Inc., the Baltimore-based operators of www.girlslife.com, agreed to pay a \$30,000 penalty, while Nolan Quan, operator of Big-MailBox.com Inc. in Los Angeles, and San Francisco-based LookSmart Ltd. will each pay \$35,000. LookSmart's violations involved the Web site www.insidetheweb.com, which currently redirects visitors to a different site owned by the company.

Executives at the companies couldn't be reached for comment by press time last week.

FTC spokeswoman Toby Levin said more civil penalty cases related to violations of the Children's Online Privacy Protection Act (COPPA) are expected to be announced

in the next several months.

Parry Aftab, a children's privacy advocate and an attorney at New York-based intellectual property law firm Darby & Darby PC, said the fines serve notice to noncomplying Web sites that the FTC is serious about enforcing the requirements spelled out by COPPA.

"The FTC has been wonder-

fully patient but maybe too patient," Aftab said. "But now, maybe Web sites which have extra money will put it into [getting into compliance with the law] rather than on design. These sites need to take [the law] seriously."

The action by the FTC comes two days after the Center for Media Education, a

nonprofit watchdog group in Washington, released a report calling on the commission to more closely monitor Web site compliance with COPPA and to take appropriate regulatory action against the companies that don't adhere to the law.

According to the FTC, which monitors children's Web sites on an ongoing basis, the three sites that were fined collected personal information from children without getting permission from their parents.

The FTC also alleged that none of the three Web sites posted privacy policies as required by COPPA.

In addition to the monetary fines, the FTC said, the sites must delete all the personal information that they collected from children since COPPA became effective on April 21 last year. They also have to post appropriate privacy policies and provide links to an FTC Web site that provides information about COPPA. ▀

Users Mix and Match When It Comes to CRM

Bank of America, UPS, others see benefits in decentralized, best-of-breed approach

BY MARC L. SONGINI

AT BANK OF America Corp., the staff would rather brag that they're making their clients happy than claim they have one central customer relationship management (CRM) system.

Despite the complexity of implementing software from different CRM vendors, big companies, from Bank of America to United Parcel Ser-

vice Inc. to Fingerhut Cos. to FedEx Corp., are hard-pressed to find one package to serve their needs. Thus, working with just one vendor in this evolving space is rare despite the hope that these applications will someday converge and create a holistic view of the customer.

"For a very large organization to end up with one single solution that solves everybody's problems and chal-

enges is difficult to impossible to find," said Bill Bradway, an analyst at Newton, Mass.-based Meridien Research Inc.

Take for instance Bank of America, which plans to go live this week with a CRM implementation for its global derivative products branch using applications hosted by Synchrony Communications Inc. in Cincinnati. According to Michael Durbin, an e-commerce manager at the Charlotte, N.C.-based bank, the applications will link several previously separate channels, including phone, e-mail and Web chat, and deliver all the collected data via one computer screen for agents.

Bank of America has launched other CRM implementations. Last month, it announced that it was developing a set of applications for its consumer business using San Mateo, Calif.-based Siebel Systems Inc.'s e-business suite.

Custom Data Management

The bank has also partnered with Charlotte-based Youcentric Inc. to develop highly customized client data management software for 8,000 agents working in its global corporate and investment bank.

"Theoretically, it would be nice to have just one system, but it's not possible," Durbin said. "[Bank of America] expects that not all divisions will choose to work with identical vendors." Still, the bank would like to connect these systems, and one reason it chose Synchrony was because it could be

Different Strokes

Advantages of using CRM applications from different vendors include the following:

- **The ability to select** the best application in a given field such as call center, sales force automation, e-mail routing and self service applications
- **The freedom to use** what will work best for your department or business unit
- **The ability to respond** more flexibly to market needs

easily integrated with other applications, he said.

Another firm with a varied set of CRM systems is Atlanta-based UPS. "We're dealing with call center applications, sales force automation [and] campaign management" packages such as Cupertino, Calif.-based Chordiant Software Inc.'s campaign management software and a Siebel application, said a UPS spokesman. Although UPS isn't planning "total consolidation," it is seeking to "provide information more seamlessly across customer touch points," he said.

Managing multiple applications is something you "definitely... have to watch closely," said Scott Struminger, vice president of corporate headquarters systems at Memphis-based FedEx, which has multiple CRM applications in place.

"You have the trade-off of writing interfaces vs. giving up functionality," he said. "You need to give this area a lot of thought before building one-to-one data relationships that lock your company into one business model." FedEx may integrate these applications if it makes business sense, said Struminger. ▀

Hyperion's Challenge: Convince Users It's Growing

BY MARC SONGINI

At its Solutions 2001 conference in Orlando this week, Hyperion Solutions Corp. must convince users that it's continuing to evolve its product into a Web-based tool capable of more sophisticated business analysis than it previously could handle, said analysts.

This is more necessary than ever for the Sunnyvale, Calif.-based data management software maker, which, in the face of flat revenue and a tough market, has been trying to expand its business.

While Hyperion has traditionally offered general-ledger analysis tools, lately it has been

shaping its product line to handle Web-based customer relationship management and enterprise resource planning activities as well, said Henry Morris, an analyst at IDC in Framingham, Mass. But it has tough competition, including Microsoft Corp., which bundles a similar tool into its SQL Server database product.

Among the users Hyperion is reaching out to is Staples Inc., the Framingham, Mass.-based office supply retailer, which uses Hyperion's Essbase online processing application to create budgets and analyze its distribution and marketing operations.

Dick Howell, a financial systems director at Staples, said he plans to find out whether Hyperion will be able to expand Essbase's scalability to keep up with the firm's rapid growth. Currently, Staples generates Essbase financial reports in hard copy; the company would also like to establish an interactive Web interface to the data for remote access.

Steve Whaley, director of financial accounting at Dallas-based Southwest Airlines Co., said he's interested in learning more about using Hyperion's Integration Server to connect Essbase to relational databases for financial data queries.

Southwest now uses Hyperion's products to handle financial reporting and budgeting and revenue analysis. "We're definitely interested in the Web, but we're still new to Hyperion's products," he said. ▀

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BRIEFS

Visa Offers Online Password Protection

Some online retailers will soon start asking shoppers for passwords when they want to use their Visa cards. Customers who opt for this higher level of security will be enrolled in Visa U.S.A. Inc.'s Payer Authentication Service, which will be rolled out this summer. Shoppers will have to register with their card issuers in advance. Foster City, Calif.-based Visa said when it announced the service last week. Merchants that have already agreed to participate include Tickets.com Inc., Buy.com Inc. and Yahoo Inc.

Cheney Talks Tech To Business Leaders

The Bush administration wants to make the moratorium on Internet access taxes permanent and will also back a push in Congress to make the research and development tax credit permanent, Vice President Dick Cheney told Virginia high-tech business leaders in a speech last week. Cheney also called for more technology training. By 2020, he said, 60% of new jobs will require skills now possessed by only 22% of the workforce.

Short Takes

Faced with falling ad revenue, online telephone directory service **555-1212.COM INC.** is now charging monthly fees, starting at \$9.95 for heavy users. . . . **NORTEL NETWORKS CORP.** reported an expected first-quarter loss and said it plans to lay off an additional 5,000 workers, marking the third increase in its cutback plans since February and bringing the total number of layoffs to 20,000. . . . **KPMG CONSULTING INC.** in McLean, Va., opened its fourth U.S.-based Broadband Solutions Center, this one in Liberty Corner, N.J. . . . Rebecca Rhoads has taken over as CIO at **RAYTHEON CO.** in Lexington, Mass. Rhoads, 44, was vice president of IT at Raytheon's electronic systems unit. . . . Kevin English, a former investment house and Internet publishing executive, has been named the new CEO of Southfield, Mich.-based **COVISINT LLC**, a Web-based online automotive parts and services exchange.

Government Eyes IT Outsourcing

Bush administration wants agencies to compete with private sector for fed jobs

BY PATRICK THIBODEAU
WASHINGTON

NASA HAS outsourced management of about half of its desktop computers, totaling some 44,000 PCs and Macintosh systems. While that's one of the federal government's biggest IT outsourcing projects to date, many more deals of its kind could soon be on the horizon.

If the Bush administration has its way, more federal services may soon be outsourced. IT, which accounts for approximately \$44 billion in federal spending, is considered a prime candidate for outsourcing, particularly because of problems government agencies have in hiring skilled technology workers and in keeping abreast of new technologies.

The potential for federal IT outsourcing is massive, said Chip Mather, a principal at Acquisition Solutions Inc., a Chantilly, Va.-based consulting firm that's advising the U.S. Department of Housing and Urban Development on an outsourcing contract. "I think there is a big bull's-eye on [government] IT," he said.

Last month, the White House Office of Management

and Budget (OMB) issued a memo spelling out specific outsourcing goals for government agencies as a whole. The memo directed agencies to compete head-to-head with private-sector companies this year for at least 5% of the eligible jobs they will have next year, with the OMB saying it wants the amount of jobs being considered for outsourcing to eventually increase to 50%.

The emphasis on outsourcing has been expected. President Bush backed outsourcing initiatives while he was the governor of Texas. The Lone Star State exceeded national averages in IT outsourcing last year, with 29% of the state's total IT budget going to third-party contractors, compared with a nationwide average of about 18%, according to a state government report.

Also a sign that the outsourcing push was coming was President Bush's choice of domestic advisors who espouse competition, such as former Indianapolis Mayor Stephen Goldsmith.

The federal directive also means agencies will have to show that they can provide services at costs that are competitive with private-sector companies in order to avoid having particular jobs out-

sourced. The OMB's outsourcing goals cover a broad range of federal jobs, but IT departments are expected to get a lot of attention.

One big factor is the aging of the government's IT workforce: A mid-1999 study released by the federal CIO Council predicted that about half of the 70,000 IT workers on the U.S. payroll will become eligible for retirement in the next five years. Moreover, many agencies say they're having problems recruiting new workers because they can't offer competitive salaries.

As a result, the use of IT contractors by federal agencies has been on the rise, according to federal IT managers and analysts. "I couldn't hire a person to save my life through the federal process, so reliance on contractors became more and more important," said Scott Ducar, a technical director attached to the deputy CIO's office for Secretary of Defense Donald Rumsfeld.

But the use of contractors to address specific IT issues can also raise difficulties, such as finger-pointing when technical problems arise, noted Ducar. He's currently involved in a pilot program to outsource the management of approximately 1,000 desktop PCs and, eventually, some servers and networks to Bethesda, Md.-based Lockheed Martin Corp.

Mark Hagerty, a program manager at NASA, said he has started receiving inquiries from other parts of the government about the space agency's outsourcing program since the OMB's directive was issued. "It's already generated some impact," he said of the desktop initiative, which began in 1998.

NASA would like to turn even more of its desktop system management over to outsourcing vendors, Hagerty said. But to accomplish that, the agency first has to overcome a "culture curve" of resistance from end users, he said. "Those are the ones [whose reactions] range from 'it's a bad idea' to 'over my dead

Bush and Outsourcing

The boss wants it: As governor of Texas, George W. Bush supported outsourcing initiatives; nearly one-third of that state's IT budget is spent on outsourcing. Now, he's making a similar push in the federal government.

OTHER DRIVERS: Federal agencies have trouble filling IT positions because of pay. Contractor use is already on the rise.

CHIEF OBSTACLE: Moving government jobs to the private sector is a politically contentious issue.

GOAL: As many as half of the eligible federal civilian jobs may be outsourcing candidates.

body," Hagerty added.

Analysts say the Bush administration faces other obstacles to its outsourcing push, especially a workplace culture where government positions are seen as jobs for life. "There are certainly a lot of political questions that have to be worked through for this to work," said Kevin Plexico, a vice president at Input, a Chantilly, Va.-based market research firm.

Although the federal government has been engaged in some big technology outsourcing projects in the past, few of those efforts led to the displacement of federal IT workers. NASA's project, as well as a plan to outsource desktop PC operations at the Bureau of Alcohol, Tobacco and Firearms, didn't include any layoffs or other job reductions.

But despite the potential roadblocks, the Bush administration "is at least putting some kind of stake into the sand" on the outsourcing issue, said Ray Bjorklund, a vice president at McLean, Va.-based consulting firm Federal Sources Inc. Furthermore, the OMB's directive shows that officials are "getting ready to take a stronger position later on," he added. ▀

Outsourcing Advice From ATF Insider

Three years ago, the Bureau of Alcohol, Tobacco and Firearms (ATF) was supporting machines that still used 5.25-in. floppy disks and three different e-mail systems. And there was no Internet access.

Under an outsourcing contract with Blue Bell, Pa.-based Unisys Corp., equipment was modernized and standardized. There were no layoffs among ATF's 85-person IT staff, who were freed to focus on more important technology needs, said CIO Patrick Schambach.

Schambach said the outsourcing decision was the right one, but he advised others to obtain service-level agreements—something that wasn't in vogue when he originally decided to outsource.

Schambach also recommended that IT managers involved in similar projects focus on the objective and ensure that details didn't derail the project.

"As the CIO, success here was my responsibility—not the contractor's," he said.

—Patrick Thibodeau

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Continued from page 1

RosettaNet

of \$12,000 to \$18,000 per CPU, a Microsoft spokesman said. BizTalk Server costs \$4,999 per CPU for the standard version and \$24,999 per CPU for the enterprise edition.

"We've really been sending the message to the [vendor] community that we have to get solutions in that price point," Hamilton said, noting that she has been made aware of other vendors that will announce such cost-effective options within the next two months.

The trend bodes well for companies in other vertical industries. Microsoft, for instance, has already announced

BizTalk Server Accelerator for the health care industry and plans to "continue to march through vertical industries" with other accelerators, including one for the emerging ebXML standard, as the need arises, according to product manager Dave Wascha.

"If a CIO walks through the door and says, 'I want you to implement the [Health Insurance Portability and Accountability Act] or RosettaNet, there are enormous learning curves. There are phone-book-size documents on how to implement these things,' Wascha said, noting the complexity of the RosettaNet Partner Interface Processes (see chart).

Wascha estimated that BizTalk Server can get a company 60% of the way to its goal

of building, deploying and managing B2B transactions and processes, and the accelerator can push it to 80%. He said companies must either hand-code or outsource the rest.

Analysts noted that Microsoft's accelerators will bring IT in line with other vendors, such as webMethods Inc. and Extricity Inc., that already have modules or adapters catering to specific vertical industry efforts like RosettaNet.

WebMethods' and Extricity's "overall packages are more costly, but they're also more flexible to support alternative standards," said Kim Knickle, an analyst at AMR Research Inc. in Boston.

"From a customer perspective, I think there's going to be a huge shift. Customers are going

to start paying attention more to the application frameworks and vertical standards than they do to the core products over time," said Peter O'Kelly, an analyst at Boston-based Patricia Seybold Group Inc. He said that core products such as BizTalk Server will be viewed as commodities and that the accelerators or adapters will differentiate vendors.

"To some extent, it requires a company like Microsoft to come along and do the pervasive model, which encourages people to come and try this out," Knickle said. "Then, as they get more comfortable with it and see how successful this kind of product can be in the bigger scheme of e-business, they start depending on it more, and Microsoft adds

BizTalk Features

BizTalk Server Accelerator for RosettaNet includes:

- A parser that allows the software to "speak" RosettaNet.
- A set of commonly used, prebuilt **Partner Interface Processes (PIP)**, which describe business processes such as purchase order management.
- A template-based tool for building PIPs.
- Documentation and samples of RosettaNet implementations.

more functionality."

One of the earliest business-to-business commerce initiatives, RosettaNet is still in "early production" mode, Hamilton acknowledged, noting that companies have found the work difficult. So far, most members are engaging in transactions with only a limited number of partners, but Hamilton expects numbers to grow.

"We had a board meeting in February, and there was fairly unanimous agreement that automating a supply chain, using standards, is a long-term investment with a huge payoff," Hamilton said. "But it doesn't happen overnight." ▀

B2B Software Vendor Takes Earnings Hit

On eve of customer conference, Commerce One asserts that marketplaces aren't dead

BY MICHAEL MEEHAN

Business-to-business e-commerce software vendor Commerce One Inc. last week joined the poor quarterly earnings parade, just days before its annual customer event this week in New Orleans.

The E-link 2001 conference in New Orleans will be the company's first chance in the wake of its full earnings report to convince customers that e-marketplaces can deliver supply chain value in a slow economy.

Karen Peterson, an analyst at Gartner Inc., said vendors like Pleasanton, Calif.-based Commerce One may have to aim for higher-volume sales at a lower price point in order to survive the next few quarters. "It doesn't look like corporations will be making big purchases any time soon," Peterson said.

However, during his company's earnings call, Commerce One CEO Mark Hoffman insisted that procurement will continue to migrate to online marketplaces and that it will continue to create a substantial business opportunity.

"Contrary to what you have heard from one of our competitors, e-marketplaces are definitely not dead," Hoffman said. Two weeks earlier, Ariba

Inc. executives were bemoaning the failure of online public exchanges to capture business.

And Commerce One plans to do more than just talk tough. In New Orleans, it will flesh out the details of a \$25 million deal with Microsoft Corp. to use its .Net strategy software in Commerce One's e-marketplaces. Hoffman hopes such deals will reinvigorate the

slumping B2B market.

Last week, Commerce One said its revenue for the quarter ended in March dropped 11%, from \$191.4 million the previous quarter to \$170.3 million. Meanwhile, the company's net loss increased 16%, from \$197.5 million to \$228.7 million. Other companies in the sector also reported lower earnings (see Briefs, page 25).

Commerce One rival Ariba also reported weak results, posting a \$48.3 million pro-forma loss and a \$1.84 billion net deficit on revenue of \$90.7 mil-

Continued from page 1

Hospital

outsourcing clients in New York, New Jersey and Connecticut.

Sullivan said Maimonides' IT group, with its history of "showing how technology can improve the bottom line," is poised to operate as a for-profit business. Before implementing any technology, Maimonides conducted a "full-blown investment analysis" to show its payback, she said.

Technology 4 Healthcare will serve as an application service provider (ASP) and offer implementation and training support for packaged software in technologies such as

picture archiving and communication systems (PACS), patient scheduling and electronic patient records. Maimonides will be the company's first client.

Operating as an outsourcer can be a risky move for a health care provider, said Richard Telesca, a senior analyst at Cambridge, Mass.-based Giga Information Group Inc. Outsourcers must negotiate service-level agreements with clients and offer compensation in the event of a system failure.

ASPs in the health care market, however, are doing fairly well, Telesca explained, because hospitals are looking seriously at hosting services and ASPs to cut costs, especially in the face of the recently enacted Health Insurance Portability

and Accountability Act, which contains various IT regulations with which hospitals have two years to comply.

Technology 4 Healthcare will partner with the following software vendors: E&C Medical Intelligence Inc. in Glen Rock, N.J., which makes an intelligent birth records system; MicroMed Healthcare Information Systems Inc. in Tustin, Calif., which makes electronic medical records and enterprise appointment scheduling systems; and StorComm Inc. in Jacksonville, Fla., which makes a PACS.

Analysts believe Technology 4 Healthcare has a strong competitive advantage because of its industry-specific knowledge and experience, said Matt Duncan, research director at

Gartner Inc. in Stamford, Conn.

The health care IT outsourcer will possess "not just a knowledge of [clients'] business but knowledge of the applications they're going to be supporting," said Duncan.

But Ashoke Talukdar, an application services engineer at The MetroHealth System in Cleveland, said his organization would choose an outsourcer based on whether it could provide the technical resources it needed, not whether it belonged to a health care provider.

"We wouldn't rule out a health care outsourcing provider, but we'd look around at other places," he said. "It depends on who gives us the most bang for the buck." ▀

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Tech Revolutionizes Russia's Central Bank

Satellites and fiber optics deployed across 11 time zones bring system into 21st century

BY MARIA TROMBLY
MOSCOW

First of a two-part series. Part two will appear next week

AS RECENTLY AS a decade ago, the Russian banking sector was an antique monstrosity, a huge system of paper-based transactions inherited from the former Soviet Union.

Businessmen in the fledgling capitalist economy were forced to carry suitcases of cash — typically American dollars — in order to make business deals. There wasn't even a system of paper checks. People paid for utilities, bought groceries, paid rent and received their salaries in cash.

However, within the past few years, and particularly since the 1998 collapse of the ruble, an avalanche of technological changes has swept through the Russian banking system.

Today, paychecks are directly deposited into bank accounts, and residents of major cities can use their debit cards to pay for everything from groceries to gas. Money can be moved electronically and from bank to bank — no suitcases required. Transactions take from one to three days to settle instead of weeks.

Among the agents of this surprising transformation were the technologists and their supporters at the Central Bank of Russia, a quasi-independent, quasi-governmental behemoth that inherited its functions from its Soviet predecessor. The bank had to replace a paper-based payment processing system with modern technology and, at the same time, build a communications system to span 11 time zones and 79 banking regions.

"It wasn't easy," said Tatiana Paramonova, the Central Bank's first deputy chairwoman, who supported the bank's invest-

ments in communications technology and processing power.

After the fall of the Soviet Union, the state banking system was split into two parts: the Central Bank of the Russian Federation, which is responsible for interbank transfers and the money supply; and the private banking sector, which includes Sberbank, the descendant of the old state-controlled savings bank.

After a failed attempt to introduce paper checks in 1992 (the physical infrastructure simply wasn't there to handle them) the Russian banking system moved directly to electronic fund transfers.

That required a combination of satellites, radio relays and fiber-optic lines. The bank won't say how much it cost to build that infrastructure.

But some critics are concerned that by focusing on technology, the Central Bank and the Russian government as

a whole are diverting attention from a more serious issue.

"Overall, the Russian banking system is not at all healthy," said Kim Iskyan, an analyst at Moscow-based Renaissance

Capital. "There is poor supervision from the Central Bank, poor man-

agement on a bank-by-bank basis. Regulations aren't enforced particularly well. There's little understanding of how to manage risk. Technology is a sideshow to all that; the best technology in the world isn't going to matter if they don't

have people who can manage well."

Iskyan pointed to the Russian economic crash of August 1998 as evidence that the banks don't have adequate oversight. "The banks were simply not prepared for the ruble to devalue, and they had risks and exposures such that they were caught in the worst position possible," Iskyan said. As a result, the investments in technology that the Central Bank and other Russian banks are making aren't as valuable as they could be, he explained.

Banking executives don't necessarily agree.

"I think we made the right decision to put in an electronic payments system," Paramonova said. "It was a big economic win for our country. It will help the economy evolve, and the regions will no longer feel isolated from Moscow." ▀

INTERNATIONAL IT

Bank Learns to Manage Distant Systems

Russian institution jumps to satellites

BY MARIA TROMBLY

Five years ago, Mikhail Senatorov, the Central Bank of Russia's deputy chairman and CIO, set out to create one of the largest, most sophisticated telecommunications and computer networks in Russia. The bank had gone from paper-based to electronic processing for financial transactions in 1993, but its leased lines couldn't handle the volume.

Today, using satellites and other technologies, automated settlement systems have been implemented in approximately

45 of the bank's 79 regions.

That's not to say all of those systems are the same. In order to get up to speed quickly, each processing center was allowed to find its own solutions to problems, Senatorov said.

"We spelled out the basic requirements, and over two to three years, the system was created in place and began working," he explained. "But everyone used their own means — HP, IBM, NCR, Sun, DEC — whatever they wanted to use."

Building a new transaction

processing system was an expensive process, said Tatiana Paramonova, the Central Bank's deputy chairwoman. "It was a high percentage of our budget. But we understand that this is our future," she said.

As part of the process, during the past four years the bank sent more than 2,000 people to a special program at the Moscow Physical Engineering Institute for computer training. Senatorov said the bank is now working on putting courses on CDs and will begin developing networked classes.

Currently, the bank has Very Small Aperture Terminals at most of its branches and the second-largest Hewlett-Packard Co. OpenView-based remote management system in the world, according to Hilmar Lorenz, HP's country manager for Russia.

"Today, now that the system works and is reliable, we're starting to think about how to standardize on one solution," Senatorov said. "Computer hardware, software, central management — that's our challenge for the next stage."

The bank will also consolidate its processing centers into a handful of centers, organized along time zones and processing volume. Today, some centers handle only 1,000 transac-

tions per day while others have half a million daily because of their locations. The new organization will distribute the workload more evenly, Senatorov said.

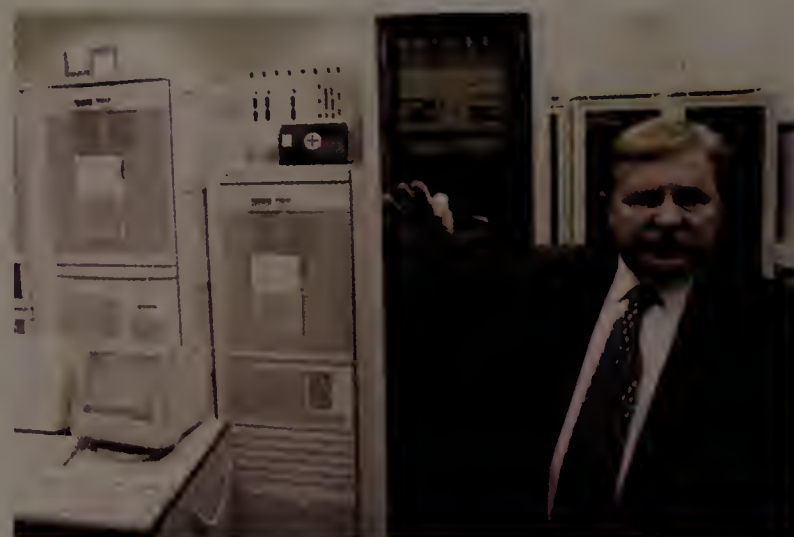
The telecommunications system is much less of a hodgepodge of systems, platforms and implementations, he said. "As a result, we can manage the telecom infrastructure from Moscow," said Senatorov.

Satellite links are necessary because fiber optics aren't available everywhere.

"Deep within Russia, I think the lines won't be there anytime in the near future," said Victor Krasovski, the Central Bank's deputy director of information systems.

In 1993 and 1994, the bank began building its communications network on the basis of military satellites, radio relays, fiber-optic and copper lines and the X.25 protocol, which allows a large degree of redundancy. The bank also put up its own satellites, as part of the Bankir (Russian for "banker") satellite system. Some estimates put the bank's spending at \$120 million by 1996.

Although the Central Bank wouldn't say how much it spent on the project, Senatorov did tell Russian news media last year that annual communications costs are expected to drop to \$15 million, from about \$40 million spent per year when the bank leased lines. ▀



CENTRAL BANK of Russia's Mikhail Senatorov: "Now that the system works and is reliable, we're starting to think about how to standardize."

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CONFERENCE AGENDA

SUNDAY, MAY 20

12:00 - 5:00pm

GOLF TOURNAMENT FOR
PRE-REGISTERED ATTENDEES

7:00 - 8:30pm

PRE-CONFERENCE EVENING
NETWORKING RECEPTION

MONDAY, MAY 21

7:00am - 8:00am

BUFFET BREAKFAST

8:00am



**WELCOME &
OPENING
REMARKS**
Alan Guibord, CEO,
Computerworld
Maryfran Johnson,
Editor-in-Chief,
Computerworld

8:15am



**OPENING KEYNOTE:
GOING DIGITAL THE
OLD-FASHIONED WAY:
GM'S LEVEL-HEADED
APPROACH TO E-BUSINESS**
Ralph Szygenda, CIO,
General Motors

9:00am

**PANEL 1:
IT'S MISSION IMPOSSIBLE:
GLOBALIZATION AND E-BUSINESS**
Panel Moderator: Sarwar Kashmiri,
CEO, EbizChronicles.com

Ready or not, the Web is making the globalization of business a reality. But pursuing a global strategy means more for IT than creating a worldwide network infrastructure, setting up foreign distribution or hiring IT talent abroad. So how does an IT Leader go about getting a grip on strategy to support the enterprise's global business objectives? Our panel will share its collective international experience to send you off with a host of good ideas along with an action-item list.

10:00am

BREAK

10:15am



**OLD RULES, NEW GAME:
BUILDING PRUDENTIAL'S
GLOBAL E-STRATEGY**
Irene Dec,
VP International Investments,
Prudential Insurance

11:00am

**PANEL 2:
THE NEXT WAVE OF
E-COMMERCE: CONNECTING
YOUR CUSTOMER CHANNELS**

Panel moderator: Kevin Fogarty,
Business & Technology Editor,
Computerworld

The customer economy has arrived with a vengeance, trailing massive numbers of Customer Relationship Management (CRM) systems in its wake. But integrating disparate CRM applications and re-architecting workflow to get that mythical 360-degree view of the customer remains a major hurdle for IT. Are you tying all of your customer channels together — in realtime — to leverage existing investments in front-office and legacy applications? This panel will bring together diverse industry views on a topic that ultimately affects every company's bottom line.

12:00pm

**INTERACTIVE LUNCH:
RECRUITING & RETAINING
TOP TALENT**

1:30pm



**AFTERNOON KEYNOTE:
SURVIVING THE
REVOLUTION AND
THRIVING IN THE
CUSTOMER ECONOMY**
Patricia Seybold, CEO,
Patricia Seybold Group
and Author of
"Customers.com" and
"The Customer Revolution"

2:15pm

**PANEL 3:
WIRELESS WARRIORS AND THE
CHALLENGE OF M-COMMERCE**
Panel moderator: Bob Brewin,
Senior Editor, Wireless Technology,
Computerworld

Few technologies hold as much promise — or pose as many perils — as wireless networks and mobile computing. What are the best practices in deploying mobile commerce applications that resolve security concerns and location-service controversies? Which applications make the most sense for wireless LANs? How do you choose an architecture that works well for your user base? How solid is the Wireless Application Protocol (WAP) standard for unifying handheld devices and wireless networks? Our panelists will examine these core questions through the lens of their own experience, coming up with some practical recommendations for the next wave of wireless warriors.

3:00pm

BREAK

3:10pm



**CLOSING KEYNOTE:
THE ABILITY TO RISK
INNOVATIONS**
Chet Huber, President, OnStar

3:55pm

CLOSING REMARKS

4:00pm - 5:30pm

SPONSOR BREAKOUT SESSIONS

5:30pm - 8:30pm

COCKTAIL/NETWORKING
RECEPTION
EXPO & BUFFET DINNER

TUESDAY, MAY 22

7:00am - 8:00am

BUFFET BREAKFAST

8:00am

OPENING REMARKS

Alan Guibord & Maryfran Johnson

8:15am



**OPENING KEYNOTE:
IT LEADERSHIP IN A
CHANGING ECONOMY**
Doug Busch, CIO, Intel

9:00am

**PANEL 4:
THE HEAVY HAND OF UNCLE
SAM IN ONLINE SECURITY AND
PRIVACY PROTECTION**

Panel Moderator: Alan Paller,
Research Director, SANS Institute

Wherever technology touches its citizens these days, the U.S. government seems to be there with new regulations or proposed legislation. The high-tech sector remains split about how to approach online privacy guarantees in the U.S., while the European Union has already adopted tough data protection laws that multinational companies must follow. Our expert panel will talk about strategies for keeping a step ahead of Uncle Sam in this uncertain, potentially explosive, regulatory environment.

10:00am

BREAK

10:15am



**PRIVACY - IT'S NOT JUST
A COMPLIANCE ISSUE**
Eddie Schwartz,
VP of Strategy, Guardent
(former Chief Security Officer,
Nationwide)

11:00am

**TOWN HALL MEETING:
"ASK THE CAREER EXPERTS"**
Maryfran Johnson

12:00pm

EXPO & BUFFET LUNCHEON

1:30pm



**AFTERNOON
KEYNOTE: THE
BEST OF BOTH
WORLDS: THE
SYNERG BETWEEN
OPERATIONS
AND IT**
Laura Olle and
Marge Connelly,
Co-CIOs, Capital
One Financial

2:15pm

**PANEL 5:
THE NEW ROI: TRACKING
TECHNOLOGY PAYBACK IN A
TOUGH ECONOMY**

Panel Moderator: Julia King,
Executive Editor, ComputerworldROI

Now is the time to recession-proof your IT organization, generate some new ideas and find new revenue streams. How is your company using the Internet to streamline processes within the organization and deal more effectively with your supply chain? Are you creating online relationships with partners and competitors alike? Where can you use IT to create new products and services? Getting focused on the real business opportunities and the ROI behind technology expenditures is the mission of this panel.

3:15pm

BREAK

3:25pm



**CLOSING KEYNOTE:
ESSENTIAL INGREDIENTS
FOR B2B MARKETPLACE
LIQUIDITY**
Harvey Seegers,
President/CEO,
GE Global eXchange Services

3:55pm

CLOSING REMARKS

Alan Guibord & Maryfran Johnson

4:00 - 5:30pm

SPONSORED BREAKOUT SESSIONS

7:00pm

COCKTAIL RECEPTION,
ENTERTAINMENT AND GALA
AWARDS DINNER

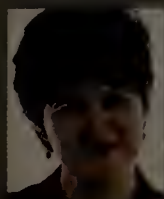
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Computerworld

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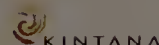
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Coming Soon to Your Car Radio: Satellite Broadcasts

Start-ups to offer subscriptions this year; widespread in-vehicle systems lag

BY LEE COPELAND GLADWIN

If two aerospace start-ups have their way, people will soon be listening to satellite broadcast radio while they drive.

Sirius Satellite Radio Inc. and XM Radio Holdings Inc. plan to charge people subscription fees of about \$10 per month for satellite radio when they begin offering their competing services later this year. The rival companies will both offer 50 channels of music and about 50 channels of news, talk and sports radio 24 hours a day throughout the U.S.

Todd Goodnight, alliance manager for receiver marketing at Sirius Satellite, said he hopes consumer frustration with commercial radio broadcasts will prime the pump for satellite services in radio, just as it did for satellite TV.

"AM/FM radio is back in the caveman world, with static and noise problems," said Goodnight. "There is also so much built-up frustration with AM/FM radio and the commercialism of it."

Meanwhile, the two companies are in a mad dash to get

their in-vehicle satellite communications services off the ground. Their efforts include building, launching and maintaining satellites at a cost of \$300 million to \$500 million each, setting up user pilot programs and establishing partnerships with national retailers, automotive dealers and automakers.

Still, neither firm has begun to tackle the arduous task of priming auto dealers or consumers for the services they plan to launch, analysts said.

"They'll have to rely on aftermarket sales for the first 18 months," said Sean Badding, an analyst at The Carmel Group in Carmel-by-the-Sea, Calif., referring to specialty equipment that gets added to vehicles after they leave the manufacturer. "The automakers won't play a critical role until the 2003 time frame, so dealers are essential to their success."

Badding said he hasn't seen a

big push to stir up dealer interest from either company.

Washington-based XM Radio last week inked a deal with Peterbilt Motors Co., a division of Paccar Inc. in Bellevue, Wash., to provide satellite radios on its 2003 line of custom-built trucks and big rigs.

XM Radio also has agreements with General Motors Corp., Honda Motor Co. in Torrance, Calif. and Freightliner Corp. in Portland, Ore.

GM, which holds a 23% stake in XM Radio, plans to have XM radios available as a factory-installed option on some of its 2002 models, due this fall.

New York-based Sirius Satellite has a similar set of deals in place with DaimlerChrysler AG and Ford Motor Co. Both of those automakers plan to carry Sirius Satellite-compatible radios on some of their brands, including Ford's Jaguar and Land Rover luxury lines.

But dealers like Sanderson

Ford in Glendale, Ariz., say they don't have plans to install the aftermarket receivers in automobiles, at a cost of \$200 to \$500. "It's still early to see if demand will develop," said Steve Wendt, a manager at Sanderson Ford.

XM Radio launched its first satellite, called Rock, last month and is expected to launch a second satellite, aptly named Roll, on May 7. XM Radio plans to offer the service to consumers in June.

Rival Sirius Satellite put the last of its three satellites into orbit in November but won't launch its service until the end of the year because it wants to undertake some additional software development.

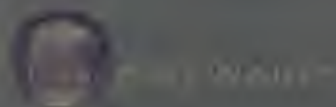
Sirius pledges that its 50 channels of music won't contain commercials and that its 50 channels of talk, sports and news broadcasts will contain only limited commercial interruptions, Goodnight said. ▀

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Report: Many Federal Web Sites Use Cookies

Government tracks visitors, despite legal prohibitions

BY LUCAS MEARIAN

Scores of federal agency Web sites use software to track the habits of users despite rules banning the practice, according to preliminary findings in a report to Congress on Internet privacy that was released last week.

Sen. Fred Thompson (R-Tenn.), chairman of the Governmental Affairs Committee, released the preliminary report from the Office of the Inspector General, which found that 64 federal Web sites have used the unauthorized tracking software.

"The federal government should be setting the standard for privacy protection in the Information Age," Thompson said in a statement.

The practice of using Web site tracking software, or cookies, was restricted by the Clinton administration last year.

The administration's rules said that agencies shouldn't use cookies unless certain conditions are met. For example, they must have a compelling need to collect the data, and they must publicly disclose privacy safeguards for handling the information.

"I think there's more persistent ignoring of the rules than we would like to have seen," said Rep. Jay Inslee (D-Wash.), who worked on the privacy provision of the Consolidated Appropriations Act of 2000.

Thompson called on the Bush administration to take action to correct "the previous administration's failure to comply with their own Internet privacy policy."

Part of the problem, according to Thompson's office, is that many of the federal agencies were unaware that they were using cookies.

For example, NASA failed to maintain Web site inventory, so the inspector general couldn't determine "the number of NASA sites, who owns which sites or whether the sites are in compliance with NASA policy," the audit report stated.

The Office of the Inspector General was required to perform audits on the various departments under the Consolidated Appropriations Act of 2000.

One-third, or 16, of the department audits were completed by mid-February. The other agencies are expected to release their findings within a few months.

The departments of Education, Treasury, the Interior, Energy and Transportation and the General Services Administration (GSA) were among others using cookies.

The report also included the following findings:

- Half of the Education Department's Internet pages that collect personal information lack posted privacy policies. Nine Web pages were collecting e-mail addresses without users' knowledge.
- Eleven of the Treasury Department's 30 main Web sites were missing privacy policies, and 19 major Web sites weren't listed on the department's inventory of sites.
- The GSA has a site managed by a private contractor, and the

contractor used tracking software under an agreement that gave him ownership of all of the data collected.

Inslee called the GSA findings "disturbing," saying, "Additional statutory action will be required to enforce these standards." ▀

The Cookie Jar

64 federal Web sites used unauthorized tracking software, or cookies, including sites maintained by:

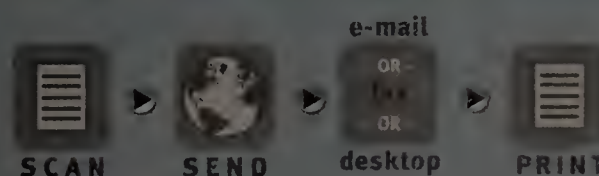
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- The Energy Department
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- The General Services Administration

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MARKET FACT

The editors of eWeek magazine recently gave its coveted and rare Analyst's Choice Award to Microsoft BizTalk Server 2000. The publication praised BizTalk Server 2000, calling it "an excellent platform for managing XML data processing among businesses."

into another via XML. BizTalk Server 2000 also maximizes the value of legacy systems by making it easier to convert XML data to and from various structured data formats.

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Microsoft

Microsoft Patches Glitch in Security Tool

BY SAM COSTELLO

Microsoft Corp. last week warned users that a flaw in its new firewall and Web caching

software — billed as the company's first product aimed purely at IT security — could lead to denial-of-service at-

tacks blocking all Web traffic from passing through corporate firewalls.

Microsoft said in an adviso-

ry that a malicious attacker could use the flaw in the company's Internet Security and Acceleration (ISA) Server to disrupt all incoming and outgoing Web proxy requests being funneled through the soft-

ware. The server running the software would have to be restarted to restore normal operations, the advisory said.

The vulnerability doesn't affect the security of firewalls and could be exploited by external attackers only if companies have turned on a Web publishing feature that's disabled by default, according to Microsoft. The company said systems administrators who have enabled that feature should install a patch that can be downloaded from its Web site.

Even companies that haven't turned on the software's Web publishing capabilities may not be safe yet. A disgruntled employee could use the flaw to launch a denial-of-service attack even if the publishing feature remains disabled. For that reason, Microsoft said all ISA Server users "should consider applying the patch."

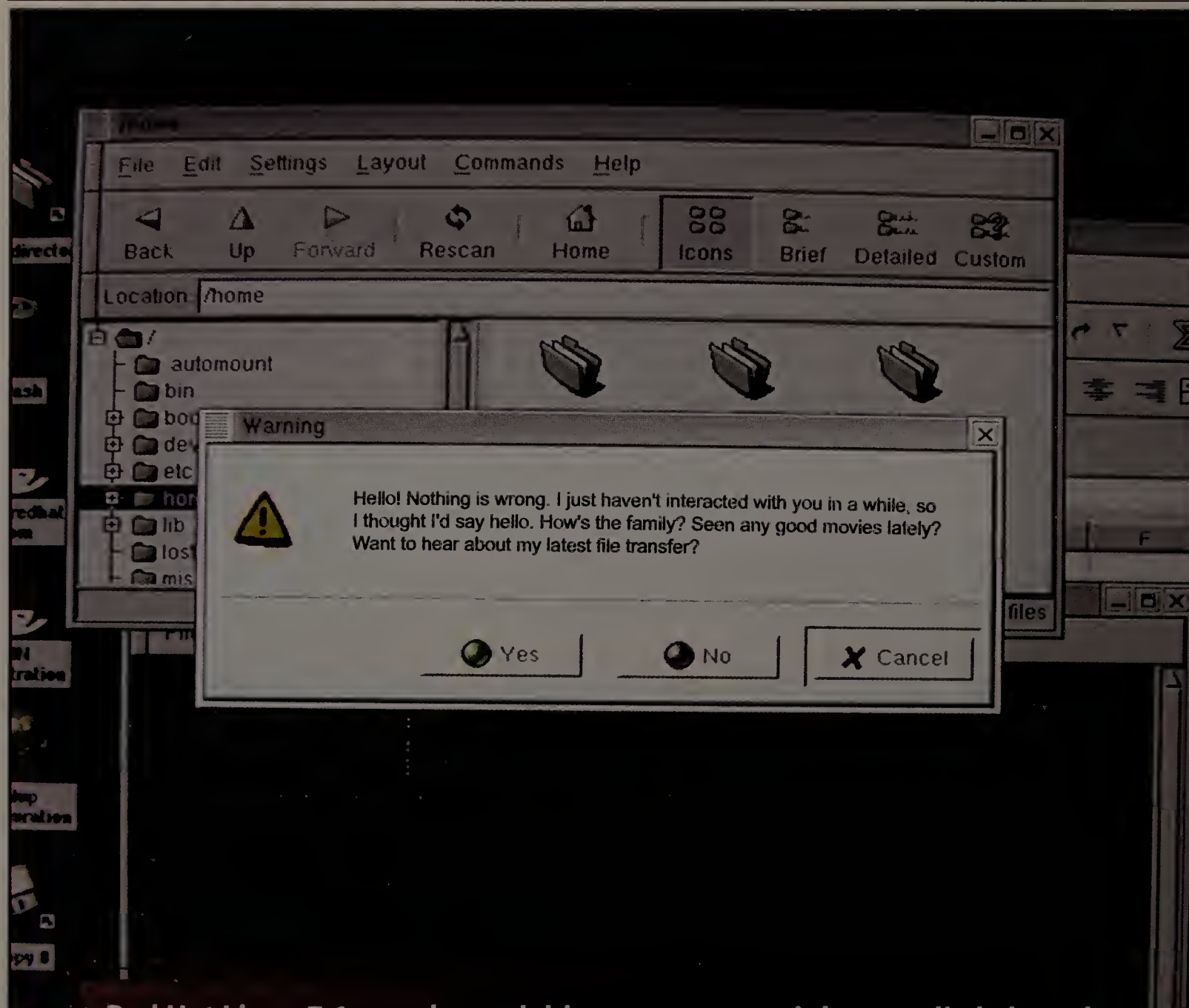
ISA Server offers an enterprise firewall, virtual private network services and Web caching technology that's supposed to help users boost the performance of Internet-based applications. Microsoft touted the package as its first security product when ISA Server was announced two months ago.

The vulnerability in ISA Server can be attacked in three ways, according to Richard Reiner, CEO and head of the e-security practice at FSC Internet Corp.'s SecureXpert Labs division in Toronto. Reiner said he and three co-workers found the flaw in the first 15 minutes of installing ISA Server in SecureXpert Labs' testing facilities early this month.

The vulnerability was "pretty glaring, not something of great subtlety," Reiner said. If the Web server features built into ISA Server are turned on, he added, a certain string of characters can be sent that causes the software to shut down. Exploiting the flaw would be a simple task for an attacker, Reiner said.

Although ISA Server is Microsoft's first offering in the security market, Reiner said the company shouldn't have let such a bug slip through its testing process. The flaw was reported to Microsoft on April 2, and Reiner said the two weeks it took the company to respond with a patch is "not an excessive period of time." ■

Costello writes for the IDG News Service.



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Loudcloud Expands Outsourcing Services

Still in red, services firm seeks wider market

BY JAIKUMAR VIJAYAN

INTERNET firm Loudcloud Inc. is hoping to find a silver lining in the corporate data center. The company, founded in September 1999 by Netscape Communications Corp. co-founder Marc Andreessen, last week unveiled technology that will let it provide outsourcing services within customers' data centers.

The move substantially expands the market for Sunnyvale, Calif.-based Loudcloud's managed services, but the firm faces formidable challenges in today's tough economic environment, said analysts.

"Customers are looking for this sort of service; the question is, how many and how soon?" said William Martorelli, an analyst at Hurwitz Group Inc. in Framingham, Mass.

Loudcloud builds, hosts and maintains Web sites for businesses, including Ford Motor Co. and Nike Inc. Its core technology consists of a proprietary software suite called Opsware that automates manual tasks such as capacity scaling, systems and network management, software reversioning and code changes.

The technology lets Loudcloud quickly size, deploy, manage, monitor and scale complex

e-commerce networks, CEO Ben Horowitz said. The company currently has data center space at Exodus Communications Inc. in Santa Clara, Calif., Equinix Inc. in Mountain View, Calif., and AT&T Corp.

Automated Tasks

Loudcloud's Opsware automates many manual tasks:

- Server and network provisioning and configuration
- Deployment of security and monitoring technology
- Change management and maintenance
- Code deployment
- Failure recovery

CA to Web-Enable Change Management Applications

BY MARC L. SONGINI

Computer Associates International Inc. last week announced that it's Web-enabling portions of its change management software line and combining the products into a single suite. The move is aimed at simplifying the configuration and re-engineering of business applications.

Change management software allows corporate IT workers to revise, update and modify applications to keep them in tune with internal business needs and processes.

In adding a Web interface, Islandia, N.Y.-based CA is trying to keep up with competitors

such as Rational Software Corp. in Cupertino, Calif., and Merant PLC in the U.K. However, CA boasts that although competitors offer individual products that handle change management on specific operating systems such as Windows NT or Unix, CA offers a wide range of functions under one umbrella.

Among the enhancements is a new Web-based version of CA's Endeavor change management tool for mainframes called Webstation.

Tom Brown, source management administrator at American Greetings Corp. in Cleveland, said that Endeavor Webstation could make it easier for

users to reconfigure applications from remote locations. American Greetings has used Endeavor for the past 10 years, but Brown said developers currently have to go to a standard mainframe user interface to make source code changes when new greeting cards are introduced. Endeavor Webstation would let them retrieve and reconfigure the necessary mainframe-based source code from a browser, he explained.

Brown said American Greetings plans to evaluate the new release. Meanwhile, the company plans to roll out within the next few weeks a new release of CA's CCC/Harvest 5.0 client/server change management tool that also now includes Web browser support.

CA said CCC/Harvest will now work with any database that supports the Open Database Connectivity specification; previously, it could only be used with Oracle Corp.'s databases. In addition, CA has included the ability to manage and monitor workflows electronically.

CA also announced an upgrade of its Web CM software for managing online content. It will now be able to handle large Web server farms and will have new content analysis features. The new releases are due by the end of the summer, CA said. ■

Last week's launch of Opsware 2i will let Loudcloud for the first time offer such services within a corporate data center, said Horowitz.

Opsware 2i will work through a combination of software and services, according to Loudcloud. When a customer signs up, Loudcloud will install an Opsware 2i "core" inside the customer's data center. The technology will collect specific application-level and networking infrastructure information that will then be used by Loudcloud's engineers to manage, monitor and scale the customer's Internet infrastructure.

The approach should help firms reduce their operational costs by as much as 40%, Horowitz claimed.

But Loudcloud continues to face challenges, said Corey Ferengul, an analyst at Meta Group Inc. in Stamford, Conn. Vendors such as Exodus, NaviSite Inc. in Andover, Mass., and PSINet Inc., all of which offer similar outsourced services, have yet to make money, despite having invested tens of millions of dollars building up huge infrastructures, said Ferengul. And their stock prices are a long way from the highs of a few months ago, he added.

"This is just not a happy sector to be part of right now," Ferengul said.

Just last week, for instance, Ashburn, Va.-based PSINet warned that it may have to file for bankruptcy, after experiencing several problems, including running up losses of \$3.8 billion last year alone.

Loudcloud's brief history isn't very different. Because it's in the process of building out the facilities, infrastructure and staff needed to offer enterprise-level managed services, the company is still at a point where it's spending more than it's taking in from customers, analysts said.

As of Oct. 31, Loudcloud had accumulated losses of \$180 million. It expects to incur "significant operating losses and negative cash flow" for the foreseeable future, according to filings with the Securities and Exchange Commission last month.

Loudcloud recently raised about \$150 million in an initial public offering after cutting its planned price from \$8 to \$10 per share to \$6 per share. ■

BRIEFS

Sun, ATG Team Up

Sun Microsystems Inc. and Art Technology Group Inc. (ATG) last week announced that they have formed an e-business support and collaborative engineering alliance. ATG CEO Jeet Singh said the hope is that his company's applications and application servers will be able to match up more closely with the scalability and testing capabilities of Sun's Solaris operating system. The companies refused to provide further details.

Winstar Goes to Court

Telecommunications service provider Winstar Communications Inc. has filed for bankruptcy and is suing Murray Hill, N.J.-based Lucent Technologies Inc. for \$10 billion in damages, accusing the firm of breaking a vendor financing agreement. New York-based Winstar said it plans to use the Chapter 11 process to restructure its finances while continuing to service its business customers.

Earnings Reports

HEWLETT-PACKARD CO. warned that its financial results will fall below expectations for the third straight quarter and said that it plans more cost-cutting actions, including the elimination of up to 3,000 management jobs. . . . IBM reported a 15% year-to-year increase in its first-quarter net profit, despite weak showings in its PC, disk drive and monitor operations. . . . San Mateo, Calif.-based Software vendor SIEBEL SYSTEMS INC. said it's laying off 10% of its 7,400 workers as part of a series of moves in response to what CEO Thomas Siebel called a "dynamic deterioration" in business conditions, despite quarterly profits of \$76.9 million. . . . Stamford, Conn.-based GARTNER INC. narrowly beat analysts' expectations but announced layoffs of roughly 6% of its 4,700 employees. Gartner announced a loss of \$1.4 million, compared with a profit of \$11.2 million for the same period last year. . . . Dallas-based i2 TECHNOLOGIES INC. said it has cut more than 600 workers in response to lower-than-expected sales of its supply chain and business-to-business software. It reported pro forma net income of \$7.5 million for the first quarter, down from \$13 million in the same period last year.

Computer Associates' New Approach

A change in product strategy has helped CA buck the economy.

► Last fall, CA switched to a subscription-based software licensing scheme, under which users can buy its products via monthly subscriptions – a move aimed at giving the company a more predictable revenue stream.

► CA said last week that revenue for its fiscal fourth quarter is expected to total \$1.44 billion under its new licensing and accounting approach, up from the year-earlier figure of \$1.39 billion. Final fourth-quarter results are due to be announced May 22; CA declined to comment on its expected net income until then.

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MARYFRAN JOHNSON

False Economies

HAVE THEY LOST THEIR MINDS?" was my first thought upon hearing that Dell and Compaq had both canceled their big blowout customer conferences recently. Is the high-tech economy truly in such a tailspin that vendors will abandon their own gold-plated opportunities to bedazzle the biggest spenders?

Apparently so. Many user companies are also tightening their travel budgets and sharply questioning the need for IT people to troop around the country for vendor conferences that offer plenty of good golf but not much insight. *Computerworld* reporters have been coming back from plenty of industry confabs lately with tales of sparse attendance, lonely exhibitors, canceled keynotes and disappointed attendees.

At a Boston trade show earlier this month, a surprising number of users were bunking with friends and relatives to eliminate pricey hotel bills. An upcoming application conference focused on customer relationship management software just slashed its attendance fees from \$1,200 to \$100 in hopes of putting more butts in the seats. And at one mobile commerce show, an IT manager actually stormed onstage when a moderator cut a session short because of low turnout. Understandably enough, the IT guy wanted his money's worth — and that included hearing other people's questions for the panel.

Now, maybe the ghost-town nature of some of these conferences signals the dawn of web-casting's Golden Age. Perhaps more people



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

will opt to watch keynotes and panel discussions over the Net. But the loss of peer networking opportunities (or of the chance to have a quiet hallway conversation with a key product developer) is a genuine downside for IT pros who know the value of face-to-face encounters.

Assuming you have some travel budget left, how best to spend it? For starters, ask about a deeper discount on those conference fees. Vendor sponsorships pay the main freight at most conferences, and it's

your flesh they want to press. Take advantage of that. Next, think relevance. Narrow your scope to conferences that zero in on best practices, leadership ideas and strategic thinking about technology. Or find the shows that focus on tutorials and training in specific technologies most vital to your company's business. Finally, look around your geographic region and downscale to something within driving distance.

These ghost towns may be spooking everybody right now, but this too shall pass. Savvy users know how useful and revealing it can be to compare vendor pitches in an open forum with other skeptical customers. ▀

PIMM FOX

Search Technology Finds Its Way Into The Enterprise

TEXT, VIDEO, AUDIO. It's all here, living and replicating like a corporate case of foot-and-mouth disease. The avalanche of information pays little heed to networks, operating systems or applications. Indeed, it's amazing you can find anything, let alone what you need when you need it.

Clearly, search technology is evolving into a set of knowledge management tools to let enterprise users locate information on databases, in e-mail repositories, across intranets and on the Internet. And those tools must interact with existing applications. For example, when you find the video and text files you want, you should be able to move them across a variety of networks and actually do something with them.

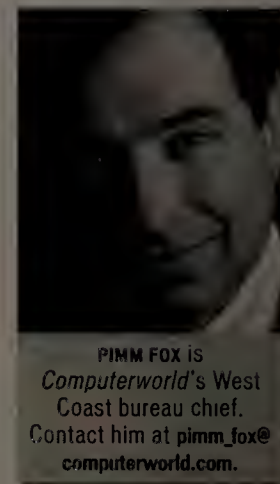
John R. Sack, associate publisher and director of Stanford University's HighWire Press, told me he needed a program flexible enough to recognize the similarity of concepts as well as words for the 245 specialized journals he publishes online. "We had to find a way to offer finer-grain results for publications such as the *Journal of Biological Chemistry* without adding to the burden of individual classification."

Of course, you can manually tag every piece of information as being potentially interesting, but that's not practical when you consider "there are more documents behind the corporate firewall than on the Internet," according to David C. Peterschmidt, president and CEO of Inktomi Corp.

A better way is to create taxonomies, or sets of relationships that have distinct meanings to users, such as determining certain noun phrases that are related. Next is to combine results with keyword searches; this creates what are called "latches," or connections to other keyword search results. At HighWire, Sack teamed up with Semio Corp. to automate the creation of taxonomies, produce tagging programs and detect when the latching process is and isn't working.

This improvement is still focused in discrete searches on a single network and platform. But consider the data in a large corporate bureaucracy: sales presentations, form letters, supplier data, training videos. The information might be more valuable if it could be connected and served to a user in a meaningful way. But if it exists across different networks and platforms, IT managers aren't going to shift terabits of data to accommodate a slick search technology.

In fact, it's worthwhile when getting search re-



PIMM FOX is *Computerworld's* West Coast bureau chief. Contact him at pimm_fox@computerworld.com.



sults to take into account where information lives — such as on an intranet as opposed to the Internet — as well as who created the data and when it was created.

Companies such as Inktomi are producing applications to do this. By overlaying the transport level (routers and switches), their new software can locate and then shift data around a network once you've found what you need.

It's time to extract the value out of your information by treating search technology as part of your IT infrastructure. ▀

DAVID MOSCHELLA

Internet's Strength Is Responsible for The Current Drop

IT'S EASY TO SEE the recent dot-com carnage as the natural result of yet another bubble of foolish greed. The problem with this view is that, although it's mostly true, it's not really very helpful. While an atmosphere of gloom and recrimination might temporarily lead people to act less foolishly or less greedy, it provides no real guidance as to how to best move the Internet industry forward.

I would like to suggest a view that is both more abstract and more practical. The primary cause of today's Internet collapse is actually the flip side of its greatest strength. The Web was able to expand so quickly because it was based on the freely available work of the university and government communities. But more than anything else, it was these same noncommercial origins that set the Internet on the course that led to the current situation.

To see why, it's worth revisiting a bit of history.

Before the Internet became publicly accessible in 1994, consumers had no reservations about paying for online content and services from vendors such as CompuServe and Prodigy. These services, of course, had many problems — most important, their lack of e-mail interoperability — but their business model was clear. Online vendors put together a package of content and services, then tried to sell it. There was

Sun and RealNetworks greatly reinforced the culture of free services by their strategic software giveaways. By 1995, the IT-consuming public had adopted an almost visceral resistance to the idea of paying for Web-based information, and the market began heading in a new and uncharted direction.

Looking back, it's clear that what once seemed like a blessing has turned out to have some severe, unforeseen consequences. Companies, investors and the public unwisely came to accept the idea that eventually, Web-based value would somehow be turned into actual money, even though this thinking ran against virtually all precedent of how viable markets are typically formed — with lead customers, niche markets, established pricing, the sort of things described so well in Geoffrey Moore and Regis McKenna's *Crossing the Chasm* (HarperBusiness, 1991). The belief that profits would come later quickly spilled over into noncontent B2B and B2C sectors.

Many Web-based companies are now trying to undo this unnatural false start and revert to the pre-Internet pattern. There is much talk about abandoning today's heavy reliance on advertising revenues and shifting toward fee-based services; there has even been renewed enthusiasm for the possibilities of micropayments. While it's obviously very difficult to go backward, and many companies will need to go bankrupt, the process of developing a sound commercial structure has likely begun.

The wisdom of the ages reminds us that events are often reciprocal and double-edged. "Fair is foul, and foul is fair," chanted the witches in *Macbeth*. We have also been warned to be careful what we wish for, lest we get it. The very openness, freedom and culture that made the Internet explosion possible became the chief cause of its current crisis. The Internet community once dreamed about a free, nonvendor-controlled cyberspace; now, many are dreaming about how to dismantle it. ▀

READERS' LETTERS

Weighing the Worker-Employer Relationship

I ENJOYED reading Patricia Keefe's column "Reinvent Your Job" [News Opinion, March 19]. But what made me chuckle was a comment by Bruce Tulgan, founder of RainmakerThinking Inc.: "... workers and companies need to redefine lifelong relationships." I submit that with one in two marriages ending in divorce, we haven't done very well at defining "lifelong relationships." What makes us think we can do the same with an employer, who is generally a lower priority? We are a nation of instant gratification. Values such as loyalty, empathy, understanding, thirst for knowledge, pride in a job well done and a willingness to wait for reward and to be patient with co-workers must all figure into the equation somewhere. The road toward values is littered with the need to make trade-offs. Until management and employees recognize this, there isn't much hope.

Prakash C. Rao
Vice president
Metadata Management Corp.
Vienna, Va.

THE LOSS of loyalty between companies and employ-

ees died a long time before the latest blip in the economy. The genesis of "this new breed of workers" was in the downsizing of the '80s and '90s, when companies moved everything that wasn't "core business" to a third party. The result was a clear awareness that the company wasn't going to train you or manage your career. You might have a job and a paycheck, but you were on your own for your career.

Companies want the flexibility to expand and contract their workforce on demand. They want skilled resources in the latest technologies, but they don't want to have to predict what the next wave will be and prepare for it. If IT staffers are crying about the layoffs now, they are too young to remember, or they still hold to the fantasy that someone else is going to take care of them.

Jack Williams
Database administrator
Austin, Texas

What Advantages?

IN YOUR STORY "Ford Opens IT Hub in India to Save Millions" [News, March 19], you quote an analyst at The Yankee Group as saying,

"There are advantages to having IT systems in India, in terms of costs, time difference and other features." Well, I wonder. Costs? Possibly, but not necessarily, when you factor in the inevitable misunderstandings. Time difference? Sure it's there, but pray tell, what advantage? That somebody is there at 4 a.m. Detroit time? Other features? What other features?

Julius Szelagiewicz
Vice president, IS
Turtle & Hughes Inc.
Linden, N.J.

After Further Review

THORNTON MAY, in his March 19 book review, states that *Secrets and Lies: Digital Security in a Networked World*, by Bruce Schneier, is not for the casual business reader and not technical enough for security-aware network architects. I agree, but IT leaders and staff who are computer-savvy but still coming up to speed on security would benefit greatly from this book. It is required reading for my staff and customers, who must learn that security is more than just a technical problem.

Frank Carr
Regional manager

National Business Group
Tampa, Fla.
fcarr@nbg.com

India's Priorities

YOUR ARTICLE "Lessons From India Inc." [Business, April 2] doesn't highlight the rampant bureaucracy, corruption, political instability, failing infrastructure and lopsided policies of the Indian government, which, in its quest for IT supremacy, continues to devote substantial resources to high-tech areas while spending precious little on primary education. As a result, more than half of India's population remains illiterate. As the old African proverb goes, "If you have one leg holding someone down, how high can you reach?"

Collins Lewis
Database administrator
Piscataway, N.J.

More Letters, page 33

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.



DAVID MOSCHELLA is vice president of knowledge strategy at Means-business, a Boston-based company that's building a database of ideas. Contact him at dmoschella@earthlink.net.

an active class of paying, early-adopter customers.

The novel idea that online information and services should be free was the direct outgrowth of the Internet's research and public-sector roots. It certainly wasn't something IT vendors would likely have come up with on their own. Eventually, of course, companies such as Netscape, Microsoft,

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such as a sports car representing “high-performance apps.”

DAN GILLMOR

Data Security Requires Diligent, Constant Efforts

THE GOOD NEWS is that security is finally reaching critical mass in the minds of the corporate executives who authorize IT budgets. Companies may be cutting back everywhere else, but they're maintaining their spending on safety.

The bad news is that security isn't a one-time fix. It's an ongoing process, an effort and outlay that will continually divert IT from the jobs it would prefer

to pursue, such as keeping the company's systems going, creating e-commerce applications and simplifying the supply chain.

The worst news is that IT operates in a world where software vendors tend to be all too cavalier about their own role.

Now, I'm not about to let the most malevolent

characters off the hook: the people who crack into computer systems for juvenile vandalism or personal gain.

The news has been full of their sleazy exploits, including cases of theft, extortion and more. When you realize that most companies don't tell anyone that they've been compromised, the number of security disasters that have been made public is scary stuff.

But we shouldn't let off the hook the companies selling hardware and software that have more holes than Swiss cheese. Why do we give them a free ride?

It's one thing when the freeware at the heart of the Internet springs a leak. With open-source software, at least, the community seems motivated to fix problems quickly.

But the vendors of IEEE 802.11 wireless networking technology have been selling products that open massive holes in corporate networks. Use a virtual private network if you don't like it, they say. Thanks for your concern, guys.

Then there's Microsoft, whose gross profit margins exceed 90%. The folks in Redmond seem to be more concerned with adding features to products than with testing and securing them. Hardly a week goes by without some new exploit of a Microsoft product being discovered — usually by outsiders, not during the company's supposedly rigorous internal testing.



DAN GILLMOR is technology columnist at the San Jose Mercury News. Contact him at dgillmor@sjmercury.com.

Microsoft doesn't sell a Windows version of its Outlook personal information management software that handles an elementary security function. Outlook won't allow users to turn off HTML display in their e-mail clients, even though it's increasingly clear that even reading HTML can pose risks in certain circumstances. Customers don't want this capability, Microsoft says blandly, even though its Macintosh e-mail client does offer HTML protection.

Why does IT allow this? Perhaps Microsoft's marketplace dominance has something to do with it. A convicted monopolist can pretty much tell its customers what it wants.

None of this leaves users off the hook. We lock the doors to our houses when we leave for work and lock our cars when we park at the store. Yet we tend to be casual about computer security.

Few companies require employees to encrypt e-mail. Firewalls, once considered the first line of defense, are becoming porous as instant messaging and other peer-to-peer technologies take root inside corporations. And social engineering, the art of extracting secret information in a phone call from a person pretending to have a right to that information, is rampant.

Security is a top-to-bottom effort. Vendors need to work harder to plug their leaks. IT needs to give users the training and tools to be safer.

And everyone needs to care more. ▀

MICHAEL GARTENBERG

Laptops Make A Fashion Statement

A FEW MONTHS BACK, I explored the issue of technology and fashion converging [News/Opinion, Aug. 28]. Many products, especially mobile devices, are now as much about form as they are about function. Laptops in particular have become more than portable PCs, and design and aesthetics are now buying decision criteria.

I recently looked at three laptop systems that emphasize form as much as function. All received press coverage for their designs, but should they be on your approved list of products?

Sony's SR series is merely 3 lb. but delivers 128MB of RAM, 20GB hard disks and Windows 2000 Professional or Windows 98. From a specifi-

cation standpoint, there's nothing unique about this machine or its cousin, the 505. No IT shop I know of approves these "consumer" machines for enterprise use, but they're everywhere, including on my desktop. In just about every meeting I have attended in the past six months, I've noticed that these laptops have become the machines of choice for digerati. The major attraction: They're among the thinnest and lightest. But they're also a really cool shade of purple that Sony calls VAIOLet.

So why aren't IT shops supporting them as a standard? The reason is Sony's reputation of selling for consumers, not serious enterprise business. But while the IT folks are buying Dell and Compaq, the suits upstairs are expensing Sonys because of looks, style and weight. My advice: Give a little here. You can support Windows, and that should be the major point.

Apple's offering, the PowerBook G4, was introduced by Steve Jobs in the only product intro I can recall that used the words *sex* and *power* in the same sentence to describe a computer's appeal. At 5.5 lb., the computer is heavier than the Sony but packs a full-size keyboard, a DVD drive and a cinematic screen. This is beautiful titanium hardware that could make a Sony lover stop and take notice. Few computers inspire so much technolust. The biggest drawback for IT folks is that the PowerBook runs Mac OS. Most IT departments, having purged their Macs in the 1990s, are loath to go back.

My advice: If someone needs one or is high enough in the organization to effectively blur need and want, give in. The old issues for not running Macs, such as lack of enterprise software and proprietary protocols, are dated. There are full versions of Microsoft Office for compatibility, Internet Explorer to support Web-based applications and Outlook for connectivity. The fact is that Apple's operating system is based on standards such as TCP/IP.

IBM's Transnote offering is the most unique among the bunch. It's not slim (more than 5 lb.), has a relatively small screen and keyboard and lacks an integrated CD or DVD drive. What makes it unique is that it's the first laptop design that's not a clamshell. Instead, it features a faux leather portfolio that opens to reveal a pivoting screen on one side and a notepad on the other. The Transnote's trick is that notes taken on the pad are converted to digital ink (but not to text) that can be saved or e-mailed.

Rather like a concept car built for show and not production, the Transnote is a solution in search of a problem. While it showcases technology well, it's too large, with trade-offs in terms of screen, keyboard and storage. Form is ahead of function, and while you will have no problem integrating its Windows-driven system, you'll have to ask why.

The interrelation of technology and fashion isn't likely to change soon. As users request form and function, smart IT departments will give users what they desire as long as the technology can be supported. It's better to seize control and provide support and integration than to cede control and be forced to support it later. ▀



MICHAEL GARTENBERG, a former vice president and research area director at Gartner Inc., is a partner at Hudson Ventures, a New York-based venture capital firm. Contact him at mgartenberg@hudsonptr.com.

Microsoft Detractors Make Their Case for Punishment

IN DAVID MOSCHELLA'S March 26 column, "Court Puts the Proper Focus on Microsoft Case" [News Opinion], he says that "unless there is clear evidence that Microsoft's actions have actually hurt consumers, the case for major government intervention is fundamentally flawed." I do think consumers have been hurt but am willing to set that argument aside to state the real issue. It is abundantly clear, even to the most casual observer, that Microsoft has broken the law. We shouldn't let lawbreakers go unpunished — that's the real issue here. Using Moschella's logic, I could drive 100 mph through a school zone but plead in court that no children were hurt. How ridiculous is that?

Roger D. Peterson

Consultant

Los Angeles

rdavidpeterson@yahoo.com

DAVID MOSCHELLA asks, "What harm, if any, has really been done to consumers?" No one has adequately addressed the instability and unreliability of Windows 9x and Internet Explorer, which have cost consumers billions of dollars in time spent repairing failures and defects in a shabbily designed and inadequately tested operating system.

Microsoft has abused its monopoly position by foisting various releases of Windows and Internet Explorer on the public before they were ready to use and jacking up its revenue and profits at the expense of consumers. Windows 3.11, with all its limitations, is still far more stable than any Windows 9x product, but it can't run state-of-the-art software. Windows 98SE is the most stable and reliable Windows 9x product, yet it was released nearly four years after Windows 95A was heaved over the wall to a gullible and unsuspecting public.

Ben Myers

Owner

Spirit of Performance Inc.

Harvard, Mass.

benmyers@ultranet.com

among the least biased I've read. I agree wholeheartedly with his conclusion that Mi-

crosoft shouldn't be allowed to charge for what it once gave away. Where he falls short is accepting the appellate court's interpretation of our antitrust

laws — that no harm has been done unless it can be demonstrated that the consumer has been harmed. How would anyone know? No other desk-

top software vendors are left that could even dare try to compete.

Steven Rubenstein

Antioch, Tenn.

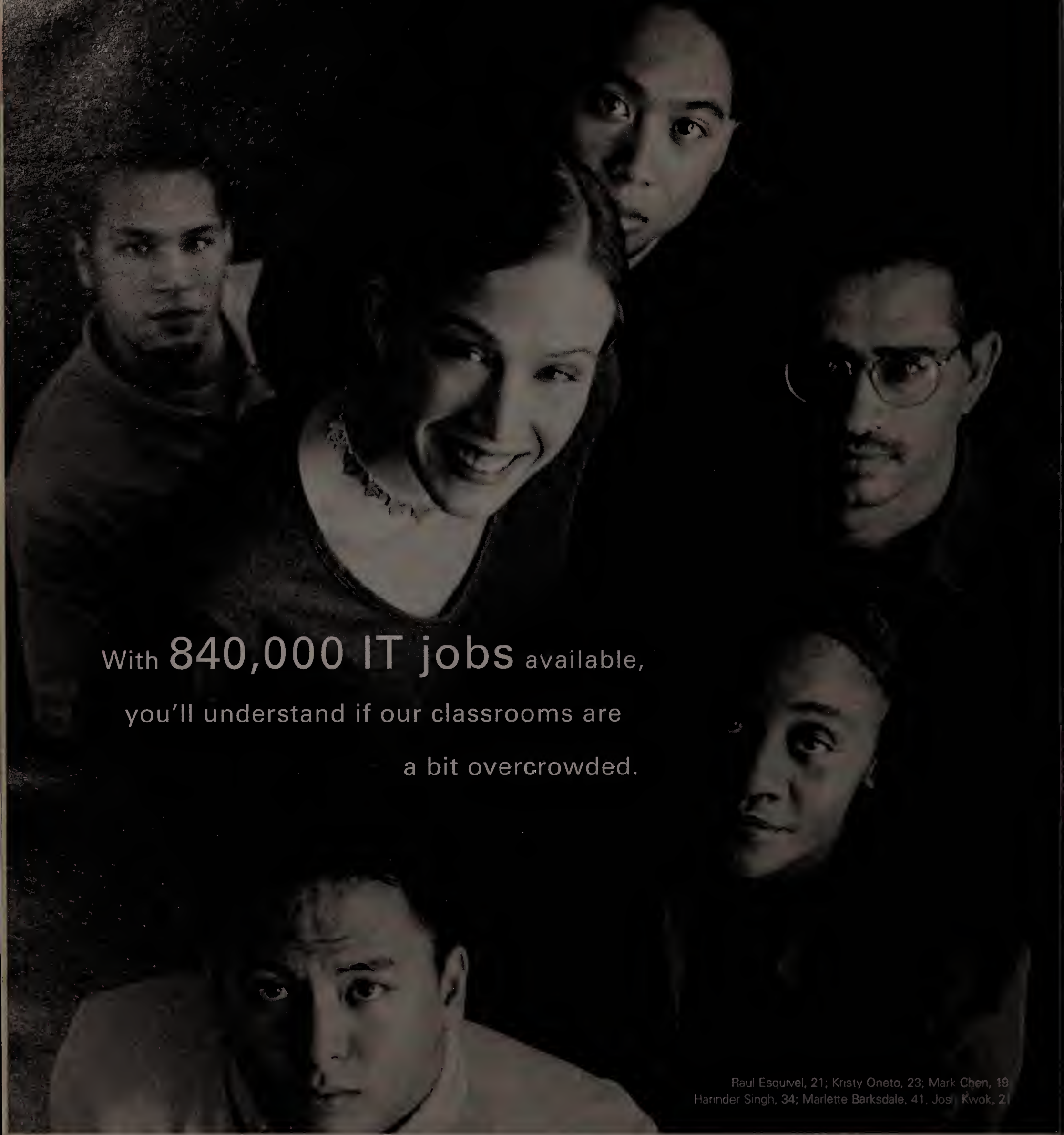
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AS USUAL, David Moschella's view of the Microsoft controversy is



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a bit overcrowded.

Raul Esquivel, 21; Kristy Oneto, 23; Mark Chen, 19
Harinder Singh, 34; Marlette Barksdale, 41; Jos Kwok, 21

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BUSINESS

SPAM WARS

Privacy groups have been attacking changes to an antispam bill before the U.S. House of Representatives. Now they're taking their complaints to the House Judiciary Committee, where they hope to reinstate the previous version of the bill. **▶ 36**

MERGE AHEAD

Neither Autobytel nor Autoweb have been immune to the souring market for dot-coms. But as the two online automotive rivals merge, they anticipate a synergy that will boost revenue and put them back on the right track. **▶ 38**

E-BUSINESS BLOWOUT?

Of the 1,400 electronic marketplaces that were announced during the past year, about 400, or just 28.6%, have actually made it to the transaction stage. And now, as the market continues to plummet, the future is murkier than ever. **▶ 42**

GOOD AS GOLD

With technology companies growing like mad in Ireland, Old Economy players are pulling out all the stops to compete for talent. But instead of luring candidates solely with high salaries, these companies are pitching career development as the bait to woo and retain skilled IT staffers. **▶ 46**

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Opinion: Ed Yourdon 39



MAKING THE ROUNDS IN SILICON VALLEY

EVER BEEN TO THE DECATHLON CLUB? What about Buck's Restaurant? Well, if you live in the Bay area and work in technology, it might be a good idea to check 'em out. *Computerworld's* Deborah Radcliff toured Silicon Valley's top schmoozing spots for IT professionals and found that despite a tight market, the opportunities to network just keep growing.

48

Privacy Advocates Say Amended Spam Bill Lacks Teeth

Legislative changes follow letter to Congress from trade associations

BY JENNIFER DISABATINO

When Rep. Heather Wilson (R-N.M.) introduced legislation in February that would prevent or greatly reduce unsolicited commercial e-mail, commonly known as spam, privacy advocates cheered and gave their support.

But then some trade associations complained, and shortly thereafter, the bill was amended in a congressional committee and stripped of some of its enforcement provisions.

Privacy advocates now say the changes have taken the teeth out of the bill, and they are lining up to fight back.

"This bill is far too weak," said Jason Catlett, president of Junkbusters Corp., a privacy advocacy organization in Green Brook, N.J.

The bill is now before the

House Judiciary Committee, where it awaits approval before going to a full vote by the House. A similar bill in the Senate has also provoked disapproval from privacy advocates. That bill is also stuck in committee.

Junkbusters and the Coalition Against Unsolicited Commercial Email (CAUCE) are two of the privacy advocates that have vowed to fight the amended version of the bill, known as House Resolution 718. The primary problem, said Catlett, is that the bill is centered around the so-called opt-in model. That means that Internet service providers (ISP) and end users must first receive spam before they can request not to be sent any more.

Meanwhile, privacy advocates at CAUCE maintain that

this is a property protection issue and argue that the owners of property such as servers or PCs shouldn't be forced to spend money to protect themselves before intrusion is considered illegal.

"So if a business has their e-mail shut down for a day because of spam, they have to clean up their e-mail disaster, then send an opt-out request, and only after some reasonable time can they defend themselves against that one entity. Of course, this process would only apply to one marketer at a time; the innocent recipient would have to go through the entire process again with each new spammer who targets them," said a statement posted on the CAUCE Web site. "The goal with previous versions of [this section of the bill] was to allow businesses and ISPs to avoid costs in the first place."

In a March 20 letter to the House Energy and Commerce Committee, 18 trade groups

and companies, primarily from the financial services sector, attacked the original bill.

Catlett found it curious that the American Bankers Association and other financial institutions, which don't use spam,

have recently expressed concerns about laws impeding electronic marketing, possibly indicating they would add it to their arsenals.

The bill would criminalize sending false header data, including false sender information, and require unsolicited commercial e-mail to be labeled as such. ▀

Please, Don't Share

While both the government and Internet service providers are concerned about spam, a new report by Gartner Inc. suggests that companies should first look for trouble in their own backyards.

"If a company rids itself of occupational spam, they'll have a 30% savings in time that is usually lost in handling unproductive e-mail," said Neil MacDonald, research director at the Stamford, Conn.-based research firm and the author of the study, which is expected to be published within the next few weeks.

"This is internal e-mail from colleagues or virus hoaxes, jokes,"

he said, "It's nonproductive, it wastes your time and it comes disguised as regular e-mail. And, you can't tell until you open it that 'Holy cow, it's a waste of my time.'" By MacDonald's estimate, employees spend an average of 49 minutes per day replying to e-mail, and 24% spend more than an hour per day checking their messages. Meanwhile, just 27% of the mail received requires immediate attention.

"Chat rooms, bulletin boards and even instant messaging are more efficient than e-mail for remote team collaboration," he said.

— Jennifer DiSabatino

KEVIN FOGARTY/BRICKS AND CLICKS

Normality Sucks

TALKING TO SOME FRIENDS in the high-tech business the other day, I had a depressing flashback to the mid-'80s. Sitting in a barber's chair in the Rust Belt town I grew up in, the barber, a stranger, asked me, "So . . . you working?"

Not what I did, not where, but was I working?

With almost all the town's steel mills shut down and local unemployment topping 20%, he was right not to assume too much.

I find myself trying not to assume too much, either, at barbecues and Little League practices that are so thick with techies in my neighborhood that it's unusual to run into a nongeek.

"So . . . uh, how's work?"

The back-chatter in personal e-mail is all about layoffs and acquisitions and job leads

for friends and the kind of job-search networking that went

out of vogue when the New Economy turned networking into a game of start-up fever.

Now it just feels desperate.

But it's really not. We're just back to normal.

Unemployment and inflation, the two ends of the economic seesaw, are both remarkably stable. So even

if the IT industry is slowing, this economy is still in very good shape.

The unemployment rate last month was 4.3%, just 0.3% higher than a year ago; the Consumer Price Index, which measures inflation, rose 0.1% in March, half its increase of last October. Despite their deflation, both the Dow and the Nasdaq are still above where they were in 1998.

On the other hand, dead

dot-coms litter the landscape. Outplacement agency Challenger, Gray & Christmas reports that U.S. layoffs are three times what they were a year ago. And Morgan Stanley reports that U.S. IT budgets will grow just two-thirds as much this year as last.

And, of course,

my mutual fund company keeps sending apology letters with the fund statements.

Not terribly reassuring, but hardly a reason to think that either the high-tech industry or the U.S. economy are in the tank for the long haul.

After years of binging on the Kool-Aid of tech excess, the business world is returning to its normal bare-knuckles, no-quarter, no-fun, bottom-line-oriented self.

It's a consolidation. Not a recession. A consolidation of companies with redundant production into a smaller number of competitors that can operate more efficiently.

Simple economics, that's all.

Remember what life in the business world used to be like? Flat budgets that stayed flat? Projects that had to be launched, even with no money to hire new staff to handle them? Efficiency and re-engineering consultants who could measure just how close to the breaking point staffers were and how many layoffs were possible without pushing the survivors over the edge?

Normality sucks.

To techies who have been working only for the past five

years, the normal business environment feels like a disaster area. But from a macroeconomic view, it's not.

Of course, it's easier to read about victims than talk to them.

In person, it still feels like a tragedy. People with families to support are suddenly jobless; colleagues suddenly disappear from conferences and e-mail lists; competitors announce layoffs that first whet your hiring appetite, then make you wonder if your own bosses are sharpening the ax.

It makes you hesitate to ask, "How's work?" and hesitant to be too optimistic when someone asks you.

So even though you know how to grit out the ordinary part of IT that's not fun or pretty, even though you know it's just normal, that doesn't make it easier.

Because you can't always tell when a friend at a mid-week ballgame is there because he's a good parent who got off work early, or because he's a road warrior who can work from anywhere. Or because he's a victim of a normal economy, who just has nowhere else to go. ▀



KEVIN FOGARTY is Computerworld's features editor. Contact him at kevin_fogarty@computerworld.com.

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Rival Web Auto Brokers Merge in Stock Swap

BY LEE COPELAND GLADWIN

Online car broker Autobytel.com Inc. earlier this month drove home a bargain when it

acquired rival Autoweb.com Inc. in a \$15.6 million stock-swap deal aimed at pumping new life into the dot-coms,

both of which have recently taken big hits on Wall Street.

The merged company, called Autobytel Inc., hopes to gener-

ate more than \$100 million in annual revenue and reach profitability by the third quarter, excluding merger costs, said Autobytel CEO Mark Lorimer.

Both Irvine, Calif.-based Autobytel.com and Santa Clara,

Calif.-based Autoweb.com will continue to operate as separate Web sites. But the acquisition will consolidate Autobytel's channel of 4,800 dealers in the U.S. and Europe with Autoweb's U.S.-based network of 5,000 dealers. Their combined networks will include 7,000 separate dealerships, officials said, as some dealers currently use both services.

"This is an eyeball gain, instead of an attempt to increase revenue," said Thilo Koslowski, an automotive market analyst at Gartner Inc. in Stamford, Conn. "They will expand their customer base on the consumer side but not from the dealer perspective."

Both firms get the majority of their revenue from selling leads to automotive dealers. Koslowski said that to gain greater consumer exposure, the merged company will need to strike more partnership deals with content providers, such as the one that links its site with America Online Inc.

The merger agreement calls for Autobytel to swap about one-third of a share of its stock for each of Autoweb's 29.5 million shares. The cost is equivalent to 53 cents per share, 83% more than Autoweb's closing share price of 29 cents the day before the April 11 merger.

Just over a year ago, Autoweb's stock closed at \$6.44 per share, giving it a market cap of about \$190 million. But the stock values of both firms have plummeted in the bear market, with Autobytel's share price tumbling from a year-high of \$8.53 in June to a year-low of \$1.33 on April 9. "The pricing dynamics were right," Lorimer said.

Autobytel posted a loss of \$29 million, or \$1.45 per share, for the fiscal year ended Dec. 31, compared with a loss of \$23.3 million, or \$1.48 per share, in 1999. Revenue rose 65% from 1999, to \$66.5 million last year.

For its fiscal year ended Dec. 31, Autoweb reported losses of \$38 million, or \$1.35 per share, compared with a loss of \$18 million, or 85 cents per share, in 1999. Revenue grew 59% to \$52.3 million, from \$32.8 million in the previous year.

Jeffrey Schwartz, Autoweb's CEO, will become vice chairman of the merged company. Two other Autoweb executives will also get seats on Autobytel's board of directors. ▀

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WANT TO LEAD?
Do you have what it takes to inspire and influence others?
CIOs reveal what they look for in potential leaders. Page 54

E-COMMERCE PITFALLS
Web shopping may be easy, but technology problems and poor customer service could keep the customers away. Page 40

XML GETS BUSY
XML stands to deliver on its starry-eyed promises, but with every other thing there's a cloud on the horizon. Page 16

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MORE MANAGERS MONITOR E-MAIL
Computerworld survey: Fearing lawsuits, loss of secrets, employers scan more worker messages

HOLDING IT ACCOUNTABLE
NEW ACCOUNTING STANDARDS for software development will force dramatic changes in the way IT projects are run, reports Kathleen Melymka. The bookkeeping rules require much greater discipline in project management and, like Y2K, they can't be ignored—not with the SEC watching. IT departments will need to keep detailed records of the time spent on tasks so that internal software costs are correctly fed into the general ledger. Application development suits that can't handle these chores may be replaced by an outsourcer that can. Report begins on page 46.

REPORT: CODE QUALITY TO TAKE A HIT
But many CIOs defend integrity of software

CAM ACQUISITION STAY HEALTHY?
Aetna/Prudential face data challenges

MERGER SPURS IT COST, JOB CUTS
Comcast/Northeast see pressure to cut rates

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A statement that computer systems are the company's property and are to be used for business purposes only.

IT'S A MATTER OF TIME
A statement to employees that they can't expect a deal in his personal and that it will not be successful.

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A statement to employees that they can't expect a deal in his personal and that it will not be successful.

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WORKSTYLES

A Storm of Activity Keeps Weather.com IT Staff Busy

Interviewee: Mark Ryan, chief technology officer

Company: Weather.com, the Internet arm of cable television network The Weather Channel Enterprises Inc.

Main location: Atlanta

Number of IT employees: 49, comprising 32 in central IT and 17 dispersed across business units

Number of employees (end users): 160

Number of site users:

An average of 14 million unique users per month on Weather.com; co-branded Web sites generate an average of 300 million page views per month

Peak seasons: "Ours are the opposite of a normal Internet company in that our high-traffic periods are in the first and

third quarters due to the storm seasons: winter storms in January, February and March and hurricanes in August and September."

What about tornado season? "Tornados are very unpredictable and not something that you can forecast. We have a severe alert capability on the site, so if there is a watch or warning, we put that information up. But people are probably not — hopefully not — glued to computers during a tornado warning."

Site volume during a storm alert: "We can go from 10 million page views a day to 40 million a day within a 24-hour period. We had 37 million page views in one day during the last big nor'easter [in March]."

What's the impact on IT? "They hope and pray a lot. We did a network redesign last summer, gearing up for the peak hurricane season, to make sure we could scale effectively to required levels without any end-user-experience slowdown. The development staff is gearing up during these periods to get as much high-value content on the site as possible."

Does the IT staff get as excited about big storms as TV meteorologists do?

"Yes, you always want to see how far you can push the

solution you have in place."

Major IT initiatives in this year: "We launched a new version of the site on Feb. 9 that involved deploying IBM's WebSphere application server software onto Sun servers back-ended into an Oracle database. We also went to an object-oriented applications model with Java and [Java Server Programs]. We also implemented

a new content management system, Interwoven's TeamSite, so product managers can change content very rapidly. If new applications are needed on the fly, we can do that very quickly now."

How does that compare with before? "The old model was a flat hash table; it wasn't a relational database. In

the old structure, we had to create and distribute a million pages an hour, and we had to do it to each one of our 14 content servers. That meant that every hour, we were effectively building 14 million pages. Now, with the relational database environment, we only have to change the data in the object model."

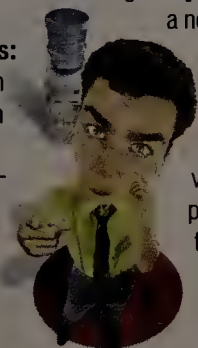
Upcoming initiatives: "We're investigating additional contextualization of our data for people's lifestyles, such as a localized golf index or ski index. For example, if you live in New York City and want to go play golf, you could enter your ZIP code and get a weather index for the 10 courses closest to you."

Bonus programs: Quarterly cash performance awards and long-term financial incentives tied to revenue growth

Workday: Flextime, with an average eight-hour day. "On big projects, we work a lot of hours."

Little perks: Foosball table in the IT area; drawings for tickets to local sporting and cultural events; monthly on-site massages; on-site lactation center; annual flu shots; adoption assistance; intramural sports; on-site automated teller machine and concierge services.

— Leslie Jaye Goff
(lgoff@ix.netcom.com)



What It's Like
To Work at ...

Finding Time to Think

ED YOURDON

WHEN WAS THE LAST TIME you saw anyone sitting back in his chair, feet up on the desk, engaged in the old-fashioned practice of *thinking*? Ever since organizations began downsizing and re-engineering a decade ago, we've become so frantically overscheduled that we don't even stop to ask why we're doing

whatever it is that keeps us so busy. Consequently, IT managers can dramatically improve a team's productivity simply by helping its members manage their time.

My colleague Tom DeMarco has just written a book, *Slack: Creating Room in Your Company for Profits and Growth* (Broadway Books, 2001), that proposes the antithesis of the common "death march" project environment: deliberately building slack into a project schedule to provide flexibility for coping with unanticipated problems and opportunities. Indeed, he suggests incorporating slack into the IT head count to avoid the inefficiencies resulting from overcommitted workers juggling multiple assignments on multiple projects.

I fear DeMarco has an uphill battle convincing modern corporations that deliberately planned slack is a good thing. Meanwhile, managers can use traditional ideas from Stephen R. Covey's *First Things First Every Day* (Simon & Schuster, 1997). Covey recommends prioritizing tasks on a two-dimensional grid whose axes are "urgency" and "importance." He divides the grid into four quadrants: Q1 (high importance, high urgency) contains the "heart attack" tasks; Q2 (high importance, low urgency) includes things such as regular exercise to prevent a heart attack; Q3 (low importance, high urgency) contains office interruptions, e-mail and phone calls; and Q4 (low importance, low urgency) consists of time wasters.

We've become so efficient during the past decade that we've eliminated most Q4 activities during the working day; we save them for the evening, when we relax with TV sitcoms and a glass of wine. But the typical working day is filled with Q3 activities. Q1 activities can't be ignored because ignoring a heart attack means death or its corporate equivalent: bankruptcy or project failure. But nobody champions the Q2 activities of planning, thinking and analyzing, since such activities appear to be idle time and are often frowned upon.

How extensive are the Q3 interruptions? An

article in *The Nando Times* reported that each day, a typical dot-com marketing director receives 80 to 100 e-mails, 100 to 150 phone calls, 20 to 25 voice mails and two or three memos and has "face-time" meetings with 10 to 12 people. That's almost 300 interruptions per day; assuming a 10-hour day, with no lunch breaks, that's one interruption every two minutes. I marvel at the "productivity" of someone who copes with such an onslaught — but is there any time left for old-fashioned thinking and planning?

IT project teams often have a similar work environment, and managers can help by teach-

ing team members to differentiate between urgency and importance. For example, filtering e-mail is a good discipline, since e-mail is the predominant form of communication in today's high-tech world. I keep four folders in my e-mail program, labeled Q1 to Q4. I've gradually accumulated almost 500 "filters" that automatically assign incoming mail to one of these folders. Not only does most junk mail disappear, but e-mail from strangers and busybodies usually ends up in the Q3 or Q4 folder and less than 20% ends up in the Q1 folder demanding immediate attention.

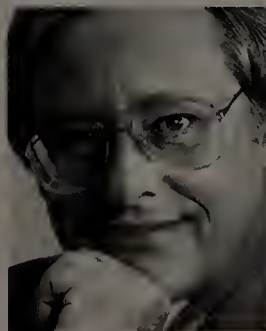
Managers can also help team members learn to plan their week in advance. Ideally, we would follow DeMarco's advice and schedule some slack time during the week. We might even encourage team members to schedule time to put their feet up on the desk and *think* about what they're doing. But if nothing else, we can encourage our developers to ensure that Q2 items are consciously allocated the time they need, rather than being

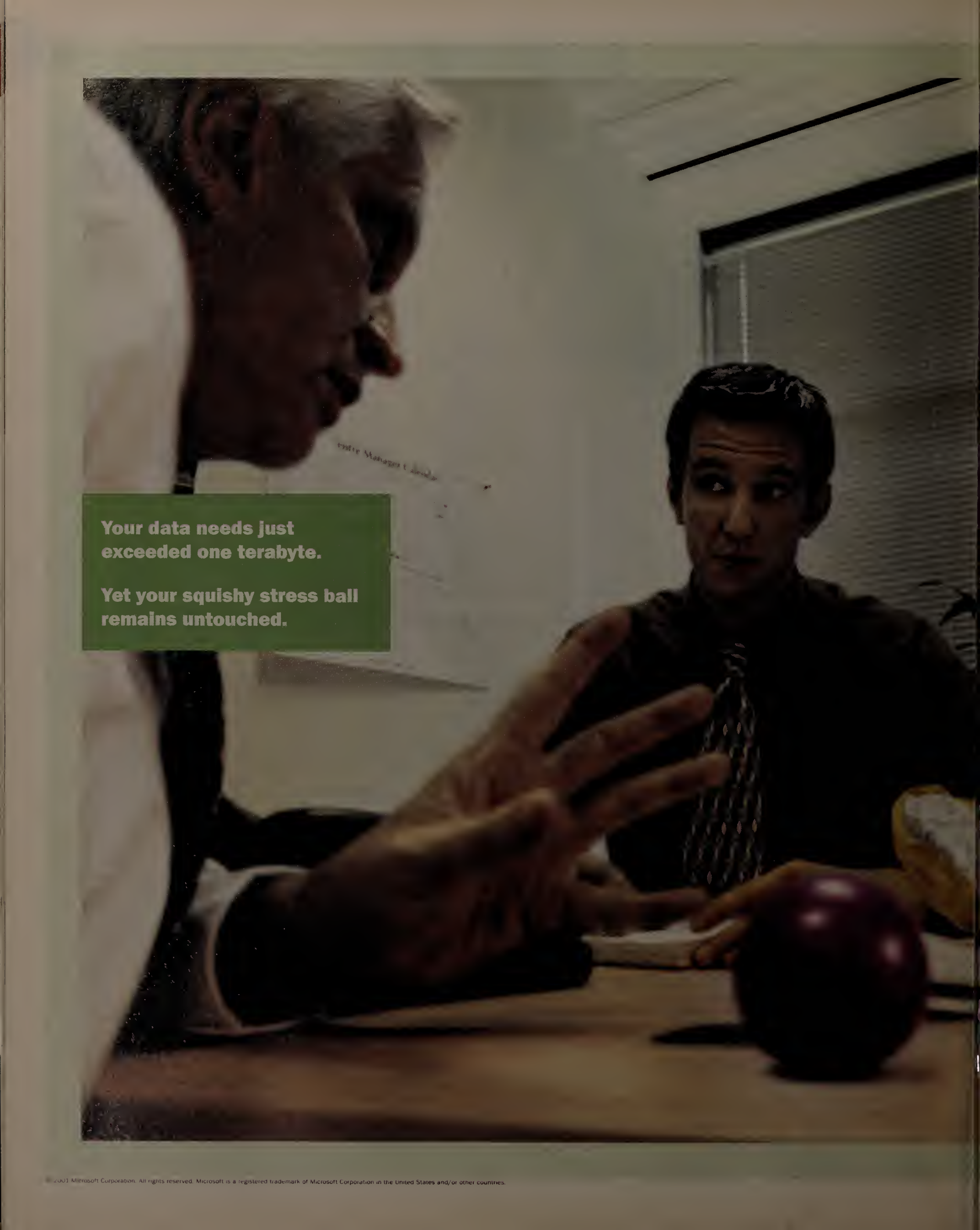
pushed aside by the immediate pressure of a Q3 interruption.

It sounds like common sense, but as the humorist Will Rogers used to say, "Common sense isn't common." ▀

Yourdon is editor of Cutter IT Journal, published by Cutter Consortium in Arlington, Mass. Contact him at www.yourdon.com.

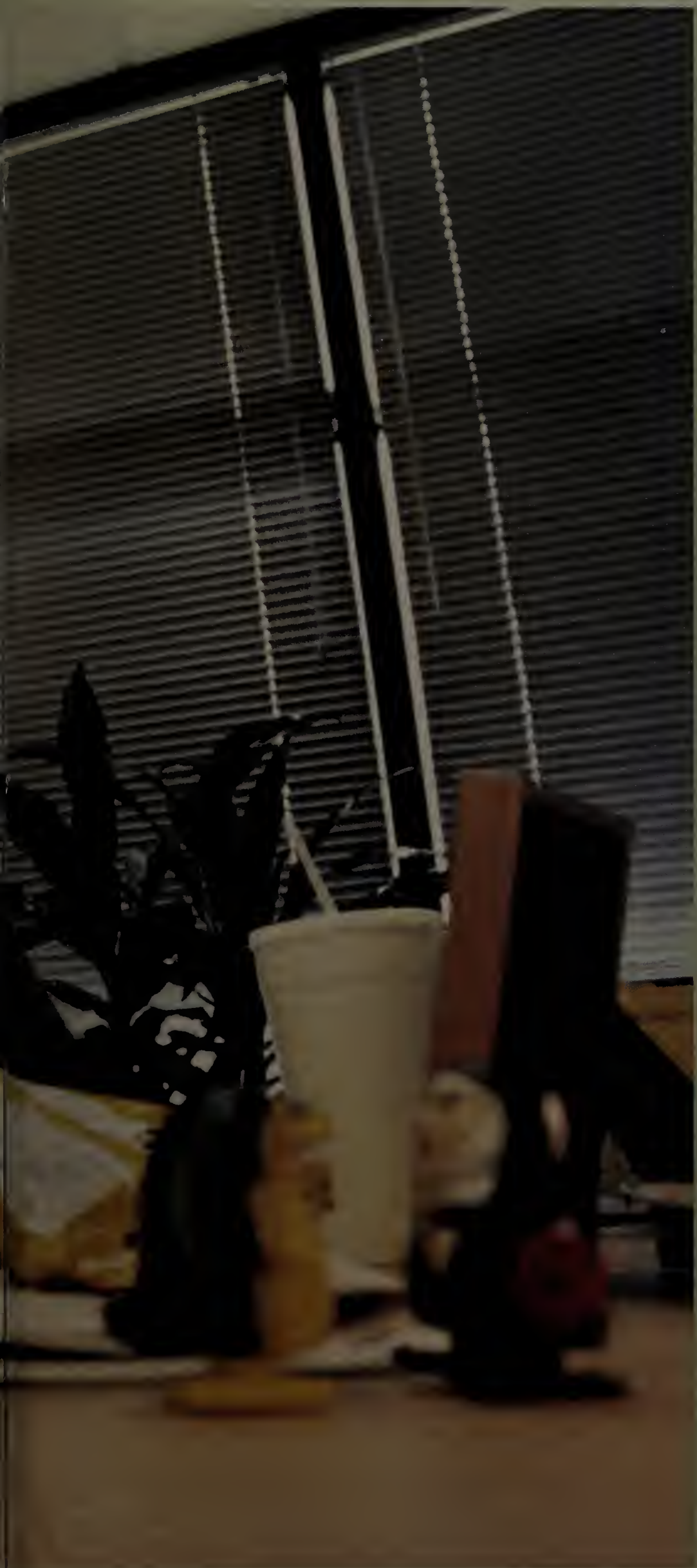
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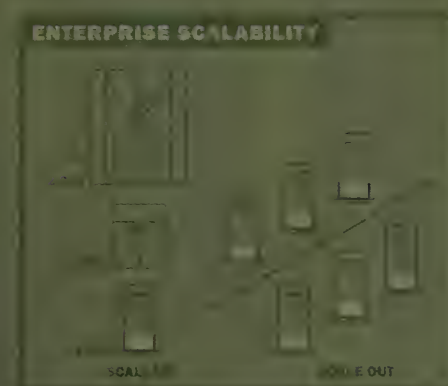
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B2B SHAKEOUT

In the wake of the recent dot-com bust and the shrinking economy, the picture for B2B electronic marketplaces is cloudier than ever. By Gary Kadet

IN THE WAKE OF THE RECENT business-to-consumer shakeout (or, if you prefer, dot-com debacle), the business-to-business tremors are drawing closer. Despite persistent hype and glowing electronic-marketplace projections through 2004, business-to-business companies had a rough finish as last year came to a close, and the outlook seems rather ominous for many firms in this space, especially e-marketplaces.

Of an estimated 900 business-to-business Web sites that were functioning worldwide midyear last year, a lit-

tle more than 400 were left standing by year's end. Many companies that were basking in capitalization just a quarter ago have since gone under — and not from capital starvation alone.

A chilling revelation: The Dot.com Group in Reston, Va., which developed software to track the behavior of Internet users, shut its doors in the fourth quarter of last year, with nearly \$5 million in hand, because venture capitalists made a move to retrieve funding. Insiders say the group hadn't signed up a single customer and

wouldn't have been able to sustain its rapid burn rate, which was more than \$900,000 per month when it shut its doors.

Adding to the confusion, accurate counts of existing e-marketplaces prove nearly as difficult to determine as e-marketplace growth projections. Of the roughly 400 remaining business-to-business e-marketplace sites, a suspicious number are nonfunctional "shill" sites that maintain a Web presence, automatic e-mail responders, request-for-proposal and request-for-query building tools, and little else.

Anecdotal evidence suggests that the number of business-to-business exchanges conducting transactions on the Web will be cut in half by the end of the first quarter. But analysts at Stamford, Conn.-based Gartner Inc. dispute that evidence.

"The number [of sites functioning

last year] may never have been as high as a thousand," says Gale Daikoku, a research director and business-to-business specialist at Gartner.

And Gartner analyst Lauren Shu says, "At most, we feel that out of maybe 1,400 announced, 400 are doing transactions."

"There is a consolidation going on," says Evelyn Cronin, another Gartner analyst. She cites consortia, partnerships and mergers between marketplaces as defining market consolidation in industry segments, such as the recent fusing of E2open in Belmont, Calif., and Partminer Inc. in New York, two marketplaces that had been supporting the electronics components industry.

According to Cronin, clusters of companies scrambling to form alliances are defining the general consolidation in the business-to-business space, but that doesn't explain all of it.

"The environment for raising capital is much worse than it used to be," explains Ed McCabe, vice president of Merrill Lynch & Co.'s Internet Research Group in New York and the company's business-to-business specialist. McCabe says he "flushes out" from his portfolio some of the more fledgling competitors or the ones with business plans that haven't made it past the planning stage. McCabe says the inability to raise capital, along with the move toward industry consortia sites, are the two principal issues adversely affecting business-to-business exchanges.

SQUEEZE PLAY

Industry consortia sites, such as Covisint LLC in Southfield, Mich., and Trade-Ranger in Houston, which serve the automotive and energy industries, respectively, have weakened the prospects for independent exchanges, squeezed funding sources and caused sites to either close up shop or never get started at all.

Covisint, whose partners include General Motors Corp., Ford Motor Co., DaimlerChrysler AG, Renault SA and Nissan Motor Co., has gotten off to a slow start since the exchange was first announced 14 months ago. But after it was cleared of antitrust concerns by the Federal Trade Commission last September — a major stumbling block to launching its operations — the exchange began handling orders between automakers and suppliers and cleared more than \$1 billion in purchases in the first quarter of 2001, according to a Covisint spokesman.

McCabe calls Covisint an "oligopoly" that holds the major share of purchasing power for its industry.

Meanwhile, the standard model for the much-ballyhooed business-to-business exchanges, which provide matching services for buyers and sellers, has also come under fire. Such sites, including Transora, a Chicago-based

PREDICTIONS

■ Despite the near certainty that a shake-out will take place among business-to-business e-marketplaces, Cambridge, Mass.-based Forrester Research Inc. remains bullish about the potential for these exchanges. According to a Forrester survey, **70%** of organizations expect to conduct **at least a quarter of their trade** via e-marketplaces by 2005, while **80%** expect to take a stake in one or more exchanges.

■ Jupiter Research in New York estimates that **one-third of all business transactions** will be conducted via an exchange by 2005, resulting in **\$6 trillion** worth of transactions.

consumer products business-to-business exchange, take a percentage of each transaction off the top.

"Adoption, at least in the industry-specific areas, has stunk," says McCabe. People aren't going to pay for the simple matching of buyers and sellers — at least in the markets where the buyers and sellers know each other well, he says. "By and large, those models are not taking off," he notes.

As for skill sites, which are little more than low-functioning Web presences or online brochureware, McCabe suggests that they could morph into functional exchanges. Nevertheless, he says he believes that matching buyers and sellers on the Web in return for a small percentage skimmed from each transaction is over. "The bottom line is that e-marketplaces need to provide services beyond matching, such as collaboration, logistics, financing — those types of things," he says. "It's diversify, morph, or die."

"Without a solid grounding in supply chain management, delivery and value-added service, an e-marketplace cannot survive in the current climate," says Mark Withington, a former analyst at Aberdeen Group Inc. in Boston who now runs his own consultancy. "These are the business laws of physics that are not remade by the e-marketplace B2B space."

As analysts continue to mine the market for data about e-marketplace survival, major companies and e-marketplace start-ups are trying to weather widespread consolidation by applying business basics.

"Supply chain management is the crucially neglected component of B2B exchange survival," says Alan Aimling, e-marketplace director at United Parcel Service Inc. in Atlanta. The reason, he says, is that "it isn't neat, you can't buy an application that will give it to you, and it's difficult."

Coordinating real-world activities involving human error and random factors like weather takes precedence

over moving bits and bytes across the Internet, according to Aimling. He cites sharing information up and down the supply chain with trading partners as the "huge value" required for an exchange to be successful.

A PRIVATE AFFAIR

E-marketplace competition is evolving into supply chain vs. supply chain. As a result, one of the principal strategies UPS has been looking at is the private marketplace, says Aimling.

For example, one large buyer in a private hub with a series of closed partners trades key information with suppliers and partners using the business-to-business exchange methodology and technical platform, to the exclusion of the public. "What you're getting is a more realistic and pragmatic view," says Aimling.

"You can have a broader set of processes in a private marketplace," says Lane Kato, director of solutions at Commerce One Inc. The Pleasanton, Calif.-based company has launched more than 120 e-marketplaces, with at least 62 of those handling transactions. The company's own exchange, Commerceone.net, provides global e-commerce services to online buyers.

"There's a pendulum effect here: Where once the pendulum swung too far toward public B2B spaces, now it may be swinging back to private," Kato says. "A private marketplace concept in and of itself offers a compelling value proposition that warrants IT managers looking at it. They'll do a simple ROI calculation and see how compelling it is."

The private marketplace proposition has intrigued executives at Bentonville, Ark.-based Wal-Mart Stores Inc. The nation's top retailer recently got its feet wet in the business-to-business marketplace by developing potential exchanges for its Sam's Club outlets.

"Our biggest concern is that customers will throw the baby out with the bath water," says Dave McCormick, senior vice president and general manager of core business markets at Pittsburgh-based FreeMarkets Inc. McCormick says he's concerned that potential e-marketplace participants will "use this dot-com crash and the fact that so many companies are going out of business as an Internet and business-to-business indictment."

Founded in 1995, FreeMarkets was one of the first freestanding e-marketplaces and has successfully followed the model of matching buyers and sellers in markets such as coal, oil and electronics components.

"2000 was the year of hype," McCormick says. "The ROI message somehow got lost among all the noise." ▀

Kadet is a freelance writer in Cambridge, Mass. Contact him at kadetg@aol.com.

WHAT'S HOT AMONG E-MARKETPLACES

There are certainly looming signs that a big shakeout is expected to take place among e-marketplaces during the next several years, since many analysts believe that vertical industries will be able to sustain only two or three exchanges. For instance, Forrester Research Inc. in Cambridge, Mass., is predicting that the U.S. market will be able to support only 181 major e-marketplaces by 2003.

Nevertheless, some e-marketplaces are expected to thrive. Here's a breakdown of some of the hottest e-marketplaces that are expected to reach critical mass during the next two years:

Open-Sourcing E-Marketplaces

FREEMARKETS INC.	ESTIMATED 2000 U.S. DOLLAR VOLUME \$8 billion	1999 TO 2000 GROWTH RATE 300%
EBREVIATE	ESTIMATED 2000 U.S. DOLLAR VOLUME \$3 billion	1999 TO 2000 GROWTH RATE 590%

Exchanges

ENRON CORP.	ESTIMATED 2000 U.S. DOLLAR VOLUME \$200 million	1999 TO 2000 GROWTH RATE 122%
ALTRA ENERGY TECHNOLOGIES INC.	ESTIMATED 2000 U.S. DOLLAR VOLUME \$12 billion to \$14 billion	1999 TO 2000 GROWTH RATE 95%
CHEMATCH.COM	ESTIMATED 2000 U.S. DOLLAR VOLUME \$450 million	1999 TO 2000 GROWTH RATE 400%


Market Intermediary E-Marketplaces

INGRAM MICRO INC.	ESTIMATED 2000 U.S. DOLLAR VOLUME \$6 billion to \$7.5 billion	1999 TO 2000 GROWTH RATE 180%
TECH DATA CORP.	ESTIMATED 2000 U.S. DOLLAR VOLUME \$5 billion	1999 TO 2000 GROWTH RATE 350%
W.W. GRAINGER INC.	ESTIMATED 2000 U.S. DOLLAR VOLUME \$200 million	1999 TO 2000 GROWTH RATE 212%

Consortia-Owned E-Marketplaces

COVISINT LLC (Automotive)
E2OPEN AND CONVERGE INC. (High-tech electronics)
TRADE-RANGER (Oil and gas)
EXOSTAR LLC (Aerospace)
TRANSORA (Consumer packaged goods)

SOURCE: "THE HOTTEST E-MARKETPLACES OVER THE NEXT TWO YEARS," BARBARA REILLY, GARTNER INC., JAN. 23, 2001



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The Power to Know™



MONEY ISN'T everything. Neither is cutting-edge technology. These truisms may be the secret for Old Economy companies vying for IT personnel in a New Economy world. What matters instead is making sure employees and recruits are aware of long-term career development opportunities.

That's the view, at least, in Ireland, where the hunt for IT specialists has been as frenzied as anywhere. For the past several years, big IT vendors such as IBM have been setting up sprawling manufacturing facilities and snapping up the relatively low-cost IT labor on the Emerald Isle.

But salaries haven't proved to be the deciding factor for IT professionals who are trying to determine where to work. In fact, compensation packages for IT personnel at Ireland's banks, insurers and manufacturers often surpass those of technology firms. Nevertheless, their IT staffers continue to flee.

Greg Kennedy, chief technology officer at recruiting agency CPL Resources PLC in Dublin, thinks he knows why. "Techs are in it for the technology — [customer relationship management], Bluetooth or a cool language. Developers also get bored easily. Money or the package alone isn't going to convince them to stay," he says.

What to Do?

Mike Campbell, head of IT at Anglo Irish Bank Corp. in Dublin, says he thinks he has found a good answer. "We offer a competitive salary," he says, "but that's not how we've managed to keep them. What we do offer is rapid progression in terms of being given responsibility for different areas of the bank. We show them the management prospects, the career opportunities, the chance to make something work better for the business, whether it's Cobol, relational databases or Web development."

To help employees visualize those growth opportunities, Campbell has also changed the bank's IT management structure. Until last year, he ran a flat organization. Anglo Irish Bank analysts, for example, would select from the bank's full-time pool of programmers for a given project and then re-

lease them as soon as the project was finished.

But Campbell discovered that the younger employees didn't like that arrangement. Instead, he says, "they prefer to have a boss." So now, each programmer reports to a supervisor but still has the freedom to dive into new projects. As a result, Anglo's IT staffers get the best of both worlds: the

guidance provided by a supervisor, plus the liberty to explore other skills. The early results have been promising.

"The turnover has eased up a lot in the past few months," Campbell says. "Last year, we lost a dozen. This year, we have only lost one so far."

Neil Murray, IT operations manager at Ireland's largest recruitment agency, The Marl-

borough Group in Galway, says nontechnology companies in pursuit of skilled IT professionals must use their best selling point: leadership opportunities. But, he cautions, "few people at the senior level have only technology experience. Financial and management experiences come into it."

For Eugene Maxwell, IT director at American Power

Conversion Corp.'s branch in Galway, the "old days of hairy programmers sitting in the background, locked away in a room, are over." So he builds his IT team from within the company's walls. His 30 IT staffers include experts in Oracle databases, Lotus Notes and Siebel Systems Inc.'s products.

And when one of those IT jobs becomes available, Maxwell grabs the phone. "Our first port of call is internally," he says. "We have loads of people in the call centers, and they all have third-level [college] degrees, lots of talent, good communication skills and an interest in the technology."

Old Economy firms also must match other perks to stay competitive. At Anglo Irish Bank, such hooks include loyalty bonuses ranging from 10% to 50% of base salaries. These bonuses are phased-in carefully: Employees receive half the bonus after 12 months on the job but must wait another six months for the other half. "The hope," Campbell says, "is to keep them a little longer."

Securing Talent

Another aggressive tactic used by Anglo Irish Bank and other banks is to offer reduced rates on mortgages and loans. This strategy has proved effective in luring younger IT professionals who are just starting their careers and are seeking financial security.

Membership fees for social and sports clubs have also become popular draws. Marlborough offers several annual events such as a casino night, a paint-ball game and go-cart races. Other companies offer reduced-price tickets for theater outings. Dues for gym memberships, vouchers for meals, performance-related bonuses and stock options are also frequently used to fill out compensation packages.

The idea, of course, is to stop valuable employees from taking permanent vacations. Sometimes, though, not even the best strategies prevent their departures. As Campbell says, "When we have lost people, we mostly have lost the young people who want to go on extended holiday, see Australia or something like that." ▀

Mackey is a freelance writer in Galway, Ireland. Contact him at overseasmackey@eircom.net.

Old Ireland Tries New Hooks

Old Economy companies in Ireland pull out all the stops to recruit and retain highly sought-after IT staffers. By Pete Mackey



MIKE CAMPBELL, head of IT at Anglo Irish Bank: "We offer [IT employees] a competitive salary, but that's not how we managed to keep them."

TOM WILHELM needs a change. After a long stint as a top independent SAP contractor making \$200 per hour, he's hit a wall with the number of incoming projects.

According to Wilhelm, president of MGF TEC Inc. in Dallas, it's time to expand his skill base by learning a hot new SAP software module, taking a course in a related application or even considering one of the full-time consulting options being offered to him.

But when you're a consultant, changing your business — whether by expanding your skill base, your geographic reach or the industry in which you specialize — requires a delicate balance of timing, preparation, good contacts and a little bit of luck.

First, you have to consider your timing. Right now, for example, Wilhelm could enroll in a course in software from Dallas-based i2 Technologies Inc., which would take approximately a month to complete. But he has to act quickly.

"In six months to a year, I'll be [behind] the curve" in terms of the other i2 talent available in the contracting industry, Wilhelm says. Plus, he says, "I don't know if I want to take the entire month off." It would take less time to brush up on a new SAP module, but he would have to wait a month to take the three- to four-week course. And what would he do if he was in the middle of a job by then? In addition, it could take a while to score a job after completing the course work.

Wilhelm acknowledges that he should have been preparing for this situation months ago, when he was at his last long-term job. His advice: "When you're on that great gig, be taking classes all the time. Every couple of months, go wherever you've got to go and take two weeks to get certified in that brand-new, hot module."

Even when things are hot in your area of consulting, "keep your nose to the wind," Wilhelm says. Pay attention to how deeply your software area has saturated the Fortune 500. If you find that most of the work is starting to come from second-tier companies, it's time to hone some other skills, as consulting rates and job volume will drop from there, Wilhelm says.

Janet Ruhl, owner of Realrates.com, a Web site of resources for computer professionals, agrees. "The most successful strategy is to add skills that relate to your current skills but allow you to move in the direction the technology is going," she says.

For example, if you're an expert in a database that's going out of fashion, get training in one that's coming into widespread use and replacing yours, Ruhl says. Clients who used the database you specialized in will need people to do migrations, and you'll be able



PAUL ZWOLAK

Consulting Makeovers

When IT consultants want to change their business, it requires a delicate balance of timing, preparation, good contacts and a little bit of luck. *By Mary Brandel*

PREPARING FOR CHANGE

► **Even when your skills are hot, hone some new ones.** Every couple of months, take time to get certified in a new module or something related to your area of practice.

► **Pay attention to your peers.** For instance, if the bulk of work is coming from second-tier companies, it's time to update your skills, as consulting rates and job volume will drop once you're outside the Fortune 500.

► **When you're adding new skills, make sure**

they relate to your current practice area but let you move in the direction in which the technology is going, says Janet Ruhl of Realrates.com.

► **Keep your Rolodex full** and stay in regular contact with peers who value your work, as well as possible clients.

► **Ask other professionals with skills similar** to your own how business is in their areas. They might even point you to clients who could use your services in a new region, says Ruhl.

to get practical, hands-on experience because you have both skills.

To be ready for times of change, keep that Rolodex full and stay in touch with peers and possible clients. This is especially helpful if you're expanding your geographic reach.

"Ask other professionals with similar skills to your own how business is in their area," Ruhl says. "If you've taken the time to establish yourself as a competent professional, others will give you useful advice, tips and even point you to clients who could use your services in a new region."

Indeed, your contacts can be everything — especially when a big career move doesn't pan out. Take it from someone who learned the hard way.

Andy Wysocki is now a technical salesman in San Francisco. But three years ago, he was an independent contractor in Massachusetts whose partner really wanted to move to the West Coast. Wysocki finally agreed.

"I had a contact out in California, and I had done a couple of projects for him," he says. "He told me, 'If you were out here, I [would] have so much work for you. I can keep you busy.'"

But after six months in the San Francisco area, it became clear that Wysocki would have to look for other work. Despite all the potential customers, no one was signing on the dotted line.

So Wysocki started calling contacts at his former employer, Natural Micro-Systems Corp. in Framingham, Mass. After returning to the East Coast and completing a four-month stint at that company, he asked if the firm had West Coast consulting opportunities. That's when Wysocki literally walked into his current job. "I just happened to walk into [an old colleague's] office, and he was looking for someone to do technical sales," he says.

The move will bode well for Wysocki should he return to contracting. "I'll be able to gather contacts so I can jump back into programming if this doesn't work out, and I'll have gained some necessary sales skills," he says.

Looking back, Wysocki says he realizes he shouldn't have moved across the country with only one contact.

"That was my setback," he says. On the other hand, he used previous contacts — people who knew and valued his work — to find more work, even though his contacts were on the East Coast.

"You know, everyone laughs at business cards, but you've got to hang on to them," Wysocki says. "You can always call and say, 'Remember me? We met at that airport in Chicago...'"

MOREONLINE

Consultant Tom Welch discusses how to keep skills current. www.computerworld.com/makeover

Brandel is a freelance writer in Newton, Mass.

Schmoozing in the Valley

A WORD OF WARNING to IT transplants trying to make career contacts in California's Silicon Valley: Too much schmoozing can be hazardous to your health.

"There's a lot of schmoozing that goes on in this valley. And a lot of schmoozing revolves around drinking, since one of the easiest ways to get plugged in is to get involved in the area's night life," says Master Burnett, a senior account executive at Silicon Talent Corp, a San Jose-based job placement firm.

Because the Valley is all about innovation and ideas, schmoozing also revolves around connecting on issues of topical interest in the technology community, Burnett says.

In fact, he adds, there are so many schmooze options that transplants can start schmoozing even before they arrive. Try business contacts or local chapters of alumni associations.

To test Burnett's ideas and offer a newcomers' guide to schmoozing in the Valley, I called all the big-name IT companies in the area — Cisco Systems Inc., Oracle Corp., Sun Microsystems Inc. — and a couple of venture capital companies. I asked them where their executives like to hang out. Then I mapped out my trip to start south, in downtown San Jose, and finish north, in San Francisco.

Schmooze Central

The most schmooze-intensive area is located between the north and south, in an area that encompasses northern San Jose, Sunnyvale, Santa Clara, Palo Alto and Redwood Shores, which Oracle put on the map when it built its glass and steel monoliths on a slip of landfill in San Francisco Bay.

In Silicon Central, schmoozing begins with a prebreakfast workout at the Decathlon Club, which is sandwiched between Applied Materials Inc., Yahoo Inc. and Maxim Integrated Products Inc. off the Central Expressway in northern San Jose — just across

The fastest way to make an impression in Silicon Valley is to be seen with the right people at the right places. *Computerworld's* Deborah Radcliff made the rounds of the haunts where top Valley techies say they hang out.

Highway 101 from Cisco.

"The pace of this valley is so frenetic that the three-martini lunch has given way to pizza in the office," says Beverly Trefry, Decathlon's marketing director. A Yahoo employee in the women's locker room confirms this, rushing through her workout in lieu of a meal because that's all she could eke out of her 12-hour workday, she says.

For this reason, the Decathlon Club is a social center of sorts. It offers informal classes and gatherings for many a technology worker and low-profile executive. Along with the Decathlon, the Pacific Athletic Club in Redwood Shores and The San Francisco Bay Club also cater to the technology elite.

Schmoozers can follow their workout with breakfast at Buck's Restaurant off Interstate 280 in Woodside. Located one exit north of Sand Hill Road, which hosts the heaviest concentration of venture capital addresses in the Valley, Buck's has a venture-centric menu, with a featured technology start-up and investment gossip that's updated monthly. Jamis MacNiven, the irreverent owner of Buck's Restaurant, calls himself "just the pancake guy." But this pancake guy has been on the cover of many a technology and tourist maga-

zine. His restaurant has also played host to outgoing Yahoo CEO Tim Koogle, banking magnate Warren Buffett and even former President Bill Clinton.

"Netscape was founded here. And so were hundreds of other tech firms. I've collected some of the scribbled napkins. It's like reading tea leaves," says MacNiven.

Venture capital firms are also moving from Sand Hill to downtown Palo Alto. Upon close inspection, I found a wealth of venture capital and technology firms (including Compaq Computer Corp.'s research center) tucked unassumingly into the terra-cotta facades lining University Avenue. And that guy

Where the Action Is

The area around San Francisco Bay and Silicon Valley is full of good places for IT professionals to schmooze their way to new contacts, jobs and business.



SUMMARY

Theme: Career advancement

Topic: Getting noticed in Silicon Valley

Definition: Webster's New World College Dictionary defines *schmooze* (from the Yiddish) as follows: an idle talk; chat.

Key points:

- Where the technology power players in Silicon Valley hang out after hours.
- Where deals are struck outside the office.
- What clubs you'll want to join.



MARCOS CHIN / WWW.AGOODSON.COM

walking briskly from the Garden Court Hotel with four briefcase-toting businessmen around him looks an awful lot like Bill Gates.

For lunch and dinner, tech executives, entrepreneurs and venture capitalists go to Spago, where famous chef Wolfgang Puck serves up European/Asian food. They also frequent Il Fornaio, located on the ground floor of the Garden Court. Here, schmoozers can find executives trying to look casual in very expensively threaded sports coats and khakis.

Schmooze South

Next, it's off to the Lion & Compass in northern San Jose. It's a favorite lunch and dinner haunt for the Cisco crowd and others, with a New York Stock Exchange ticker that rolls across a wall. "This is where Atari was founded," says the bartender. "The CEOs from Cisco, Amdahl, Cypress, Yahoo — all the hotshots have held gatherings here."

Farther south, schmoozing centers on the San Jose Convention Center, near yet another Il Fornaio (there's also one in San Francisco), which could be called the fast-food chain of the Valley's executive and venture set.

In convention areas like this, it's best to look for tech groups in the surrounding hotels, such as the Hyatt Sainte Claire, the De Anza and the Fairmont. The sounds of schmooze literally echo off the marble floors and pillars of the Fairmont's lounge, which serves generous martinis to a crowd of laptop-using schmoozers.

"This is the biggest office in Silicon Valley," says hotel spokeswoman Lina Broydo. "I like to joke about the irony of watching people socialize in our lounge with a drink in one hand and a laptop mouse in the other." I have attended many schmooze sessions in this lobby, interviewing tech CEOs and such during conferences.

Hands down, though, E&O Trading Company has the biggest martinis in San Jose. "This is definitely the spot for geeks to schmooze," says a spike-haired bartender at E&O as he shakes up another batch of martinis for a group of seven techies standing around a table near the door.

Katie Bloom's, an Irish pub on First Street, and the Mission Ale House, at Santa Clara and First streets (formerly a Netcom On-Line Communications Services Inc. hangout) are the glass-tipping schmooze spots downtown.

At least one person schmoozed it big at the Ale House: "Kendra the bartender met a millionaire from a dot-com, and we never saw her again," says John Saldivar, a developer at nearby storage-area networking vendor Brocade Communications Systems Inc.

But searching for female companionship isn't so easy in the south Valley. The male-to-female ratio at down-

town watering holes averaged about 10 to 1 during my visit. Burnett says those who are looking and have deep pockets (as in seven figures) should check out the well-to-do areas of downtown Los Gatos and Saratoga.

Schmooze North

There are plenty of women just 40 miles north in San Francisco. Start with a martini at the Red Room. Having been there many times already, I began with drinks in North Beach. This is where attorneys and upwardly mobile IT professionals hang out at places like Moose's, Fuse and Little City, says Stephan Jon Silverman, formerly a technologist at San Francisco-based Scient Corp. He recently returned to private consulting.

"At Moose's, I picked up some consulting work for a major venture capital firm. I met them cold that night," Silverman says. "And at Little City, I sat in a corner one night reading a book when I heard enough conversation between partners at a consulting company that I could have stolen their client had I wanted to."

After Moose's, our party ended up at Gordon Biersch Brewery in a now-decaying dot-com section of the city, where a lot of schmoozing went on over garlic fries and home brews. This is where some IT geek took my last business card and tried to schmooze me into writing about his company, an enterprise directory optimization software vendor in Scottsdale, Ariz.

The most popular clubs for the young dot-com/dot-bomb and multimedia development crowd include 111 Minna, the Manhattan Lounge, Madame Mercury and Ruby Skye, says Heather Holvey, a spokeswoman for the Argent Hotel, which competes with the nearby W Hotel for the trendy technology and conference crowds.

But for all the partying, the serious money hangs out in San Francisco's financial district. And the best place to find financial executives is up on Nob Hill, where the out-of-town financial executives stay at the Fairmont, the Mark Hopkins Inter-Continental or the Ritz-Carlton.

In fact, high tea at the club floor at the Ritz is an excellent place to hang with other big-ticket schmoozers, wear off a four-day schmooze hangover and think about what to do with that new fistful of business cards. This is why one shouldn't overdo the schmooze; it will all be for naught if schmoozers don't make an intelligent first impression, say Burnett and Silverman.

So maybe it would be a good idea to lay off those martinis just a bit. ▀

MOREONLINE

For more information about places to schmooze in Silicon Valley, visit our Web site.
www.computerworld.com/schmoozing

Legal Entity

DEFINITION

When a business is formed, the type of **legal entity**, such as a corporation or limited partnership, it will be must be decided. That will determine how the firm and its owners are taxed, as well as what individual protection from monetary liabilities the owners are afforded.

BY MARY K. PRATT

RATIMIR PAVESIC and Azmina Janmohamed had a clear vision of what they wanted when they launched their Boston-based systems integration company in January. They considered market needs, developed business strategies and crafted a message to position the company's services.

But they still needed outside help getting iTrian off the ground. "We knew if you want to start, you go to a lawyer and an accountant to set it up," Pavesic says. "We couldn't be just two people working."

Pavesic and Janmohamed decided to form a limited liability company (LLC) because it gave iTrian the structure and liability protection of a corporation but with more flexibility and a better tax structure.

Entrepreneurs have many options when they set up shop. They can do business as a partnership, a corporation or an LLC. The choices might seem confusing; in fact, legal experts say many businesspeople don't grasp the differences among the entities. To many, the letters that follow a company's name — *Inc.*, *Corp.*, *LLC* or *LLP* — seem like little more than window dressing.

The truth is, though, that each business type comes with its own set of benefits and drawbacks, and while one approach might work well for a new business such as iTrian, there isn't a one-size-fits-all entity. Business goals, tax laws and the potential for monetary liabilities all factor into taking the right path.

"These things are so intermingled," says Michael Desautels, a tax partner at PricewaterhouseCoopers in New York. "It really does come down to a tailored fit for every situation."

Lawyers, Guns and Money

Entrepreneurs need to take legal steps to have their companies classified to determine how personal liability and taxation issues will be addressed, says William H. Clark Jr., a partner at Drinker Biddle & Reath LLP in Philadelphia and head of the American Bar Association's Entity Rationalization Project, which examines the laws of business formation.

Consider the corporate entity. Businesspeople who form corporations enjoy individual protection against monetary liabilities that range from unpaid debts to lawsuits.

"If something negative happens, that form protects the [owners] from damages," explains Avi Lev, a Boston-based lawyer who works at MyCounsel.com, a Web-based provider of legal services.

Corporations face double taxation, which means the corporation and the shareholders are both obligated to pay federal taxes on their gains.

Desautels explains this using simple math: If a corporation makes \$100, it will pay \$35 in taxes. The remaining \$65 is distributed to shareholders, who then pay income taxes against that revenue. Using the 28% tax rate, that amounts to another \$18 in taxes. That leaves shareholders with \$47 out of the original \$100.

Companies that have *Corp.* at the end of their names are

corporations, most often C corporations. To the IRS, a C corporation is a separate taxpayer. Companies with names ending in *Inc.* and *Ltd.* are also corporations. Companies can choose the one they like; there's no real difference between them.

"It's a flight of fancy," says Paul Barrett, head of the corporate and business practice at law firm Donoghue Barrett & Singal PC in Boston. "Co. doesn't signify anything. That's why you'll see a lot of *Co. Inc.*"

However, the laws for these classifications are changing, says Clark. "A number of states allow companies to use [Co.] as a corporate designator," he says.

There's also a second type of corporation. An S corporation — essentially, a C corporation that meets certain IRS criteria, such as limits on the number of shareholders — avoids double taxation. There are cases in

which being an S corporation makes sense, Desautels adds. For instance, a company that makes a lot of money but doesn't intend to invest a lot of that money back into its operations might be better served as an S corporation.

Other Options

While *corporation* has been the standard tag for many organizations since World War II, optional designations exist. These alternatives, such as limited partnerships (LP), limited liability partnerships (LLP) and LLCs, generally avoid double taxation and offer varying degrees of liability protection.

The LLC has become popular in the past 10 years because of its ability to protect individual assets while avoiding double taxation. "It's taxed as a partnership, but it has the limited liability of a corporation," Lev explains, adding that it's flexible and easy to set up. "That's why it's what I think of first."

An LLC that earns \$100 sees that money flow right through to the owners, who, at a 28% tax rate, would pay \$28 and keep \$72, Desautels says. That's why an LLC is called a flow-through entity.

An LLP is a similar flow-through entity, with general partners protected from liability caused by the conduct of others, Clark says. "It's a partial limitation," he notes. An international firm with a thousand partners can be classified as an LLP, so if a partner working in San Francisco committed malpractice, for example, the other partners around the world wouldn't be liable for that individual's actions.

An LP is also a flow-through entity, although it offers less liability protection, legal experts say. An LP is made up of limited partners and at least one general partner who's personally liable for everything, Clark explains.

"Many of us believe the LP form will collapse into the LLC, because there's no reason

Things are so intermingled. It really does come down to a tailored fit for every situation.

MICHAEL DESAUTELS,
TAX PARTNER,
PRICEWATERHOUSECOOPERS

to have the LP," he adds. The triple LP combines the LP and LLP, Clark explains, although this form isn't a common business entity.

Although LLCs and LLPs might seem to be the most attractive approach because they avoid double taxation and offer liability protection, legal experts stress that the decision isn't that simple. A company's size, the size of its assets and its industry actually have little influence on how it should classify itself.

For example, if you want to take a new business public, being a C corporation is generally the way to go. "You can't give stock options in a partnership," Desautels says.

Start-ups might also opt for a corporate form because of the "lack of hurdles" to raising venture capital, Barrett says; C corporations have no limits on how much they can raise in private capital.

Another reason some start-ups might become corporations, Clark says, is that corporations can build up losses year after year and then apply them against profits when they materialize. ▀

Pratt is a freelance writer in Arlington, Mass. Contact her at markmary@mindspring.com.

Name Game

A business has an obligation to accurately represent what type of entity it is, whether it's putting its name on letterheads or filing legal documents.

CORP.	
INC.	
LTD.	
CO.*	All indicate a corporation
LLC	Represents a limited liability company
LLP	Represents a limited liability partnership
LP	Indicates a limited partnership

*Sometimes indicates a corporation



A box without service is a box.

With hp people, hp 9000 superdome becomes a solution, instead of a server.

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Without, ironically, a service call. hp.com/superdome



JOE AUER/DRIVING THE DEAL

Don't Let Vendors Hold You Hostage

THE FOLLOWING ONEROUS PROVISION regarding a customer's payment obligations was uncovered during a review of a vendor's proposed software licensing contract:

Licensee shall pay vendor the fees set forth. . . . Without limiting vendor's remedies, if licensee fails to pay in a timely manner any amount due, vendor may, in its good-faith determination, place licensee on "hold." During any hold period, licensee will not receive any support or updates. Licensee shall reimburse vendor for any and all collection costs (including attorneys' fees) incurred by vendor in the collection of past due amounts.

The vendor, in its self-proclaimed infinite wisdom, is demanding a unilateral right to cease its performance obligations if it perceives that the customer has an unpaid balance.

Never agree to such a provision. You have an obligation as a user of a vendor's intellectual property to pay all valid amounts when due, but a vendor shouldn't have a unilateral right to cease performance without notice if it believes you haven't paid some amount.

Several issues need to be

dealt with in this vendor's boilerplate language. A vendor's fundamental objective is to make sure it gets paid, and we, as customers, should provide assurance that we will pay. But that assurance shouldn't require that we assume any additional and unreasonable risk.

Clarity Beats Faith

A big problem in this provision is that the vendor can cease providing support and updates if it believes money is due. It would be more reason-

able if, after providing appropriate notice, the vendor were to invoke a hold period only if the customer fails to pay a support bill.

What if the unpaid invoice is for consulting services or shipping charges? Then suspension of support shouldn't be tolerated. In an equitable agreement, the remedy must match a vendor's loss but isn't intended to give it any additional benefits or create additional risk or hardship for a customer.

Another intolerable part of this provision is the vendor's

right to act "in its good-faith determination." A vendor's idea of good faith may be very different from yours. Both parties must define and agree to what's being said in such good-faith provisions. Clarity beats faith every time.

Under this standard vendor boilerplate, the vendor also retains all other remedies, such as the right to go to court and obtain an injunction.

Don't be inclined to give a vendor multiple remedies for a single infraction on your part. The remedy should attempt to make a vendor whole for a single infraction and nothing more.

Here's a better way to write the provision — one that gives a vendor adequate protection but isn't overly restrictive for a customer.

Licensee shall pay vendor the fees set forth. . . . If licensee fails to pay any valid amount due according to the specified payment terms, vendor will so notify licensee and licensee shall have a 10-day period to pay any such valid and undis-

puted invoice.

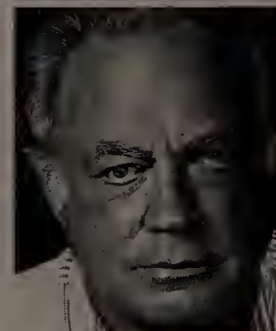
After such 10-day period, if licensee fails to pay any support invoice, vendor may cease to provide support for the licensed software. All other fees remaining unpaid after the notice and 10-day grace period will be subject to arbitration.

Although such wording provides one solution to the problem, there are several variations that can be just as effective. The key is to work with your vendor to arrive at fair and equitable terms that neither automatically place your applications in jeopardy nor provide excessive remedies to the vendor.

In general, the goal of all supplier contracts should

be to make a customer's payment obligation totally dependent on satisfactory vendor performance.

As much as possible, avoid customer payment obligations — such as a monthly due date, signing the contract or receiving an invoice — that are triggered by something other than an acceptable act of performance. ▀



JOE AUER is president of International Computer Negotiations Inc. (www.dobetterdeals.com), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joea@dobetterdeals.com.

BRIEFS

Study: B2B Partners Poor Performers

In a 407-company survey focusing on this year's first quarter, the National Association of Purchasing Management and Cambridge, Mass.-based Forrester Research Inc. found that 36.6% of respondents considered the online trading capabilities of their partners to be "very bad" or "poor." In addition, the survey found that only 42.8% of respondents used the Internet to collaborate with suppliers, down from 50.4% in the fourth quarter of last year.

Expedia Nears Profit

Online travel agency Expedia Inc. last week announced that it will

show its first operating profit when it reports financial results for this year's first quarter, though acquisition costs will leave it in the red. The Bellevue, Wash.-based company expects to report revenue of \$110 million for the quarter, a 39% increase over the \$80 million it earned in last year's fourth quarter. Expedia predicted it would earn 9 cents per share before previous non-cash items are figured into the equation. However, because of its acquisitions of Web sites such as Las Vegas-based Travelscape.com, Expedia said it will post an overall loss of \$18 million, or 37 cents per share.

DOT Declines to Block Orbitz

The Department of Transportation (DOT) ruled earlier this month that there isn't sufficient evidence of anticompetitive activity to warrant halting the expected June launch

of Orbitz LLC. Chicago-based Orbitz is a travel Web site with financial backing from United Air Lines Inc., American Airlines Inc., Delta Air Lines Inc., Northwest Airlines Inc. and Continental Airlines Inc. More than 20 state attorneys general and the Washington-based American Antitrust Institute lobbied to block Orbitz's launch, but the DOT said it couldn't block the site unless Orbitz engaged in actual anticompetitive activity. However, the DOT promised it would review Orbitz's operation in December.

Electronic Banking Scam Busted

Authorities last week arrested four suspects in Switzerland and San Francisco in connection with an Internet banking scam that caused approximately \$3.9 billion in losses, said the International Chamber of Commerce (ICC), which

monitors banking fraud. The suspects allegedly lured investors into transferring funds into sites that mimicked Paris-based transaction clearing system Euroclear France SA and New York-based financial information service Bloomberg LP, said Chris Spillelt, an information analyst at Paris-based ICC's commercial crime bureau. Spillelt couldn't provide any details about the suspects. He said he believes they were involved in the scheme but weren't the masterminds.

Outpost Cuts Staff

E-business retailer Cyberian Outpost Inc. recently announced that it has cut 110 jobs, or 30% of its workforce. The Kent, Conn.-based company also named Darryl Peck as its new president and CEO, replacing Katherine Vick. The management shuffle came a day after officials at Cyberian's Web site, Outpost.com, said they were having

trouble getting the money they needed to continue to operate. Officials said the company is refocusing its business to concentrate on selling technology products to consumers through Outpost.com. Previously, it was a business-to-business reseller of technology products and offered e-business services.

Yahoo Names Warner Executive

Internet giant Yahoo Inc. last week named Terry Semel, a 24-year veteran of Burbank, Calif.-based Warner Bros., as its new chairman and CEO. Effective May 1, Semel will replace Yahoo CEO and chairman Tim Koogle, who will be vice chairman until August. The Santa Clara, Calif.-based company last month said Koogle would remain chairman, but in last week's announcement, Yahoo said Koogle will instead continue as a board member.

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Xtreme Recruiting: How We Got Here and Where We Go from Here

MICHAEL MCNEIL, PURE CARBON

Critical recruiting lessons for a critical time in recruiting. Michael McNeil, the former head of Cisco staffing and founder of Pure Carbon, a unique e-recruitment solutions company, is considered by many as one of the leading visionaries in the employment space.

Automated Screening: Guaranteed Success or Formula for Failure?

DR. WENDALL WILLIAMS, SCIENTIFIC SELECTION

Are you really measuring what you want? What does it take to do it right? Dr. Wendell Williams, Managing Director of Scientific Selection is a nationally recognized expert in testing and assessment for selection. He is a frequent contributor to online and print recruitment newsletters and professional publications.

Measuring Your Success: What Your Management Really Wants to Know

KEVIN WHEELER, GLOBAL LEARNING RESOURCES, INC.

The critical value of metrics is in the eye of the beholder. Do you know who your stakeholders are?

Kevin Wheeler, the President and Founder of Global Learning Resources, Inc., is a globally-known speaker, author, columnist, and consultant in human capital acquisition and development.

Managing the Hiring Manager KEN GAFFEY, STAFFING CONSULTANT

What you can do to plan, prepare and promote critical relationships in the hiring process.

Ken Gaffey is a staffing consultant with over 15 years of Human Resources experience in the New England high technology and financial services marketplace. Ken is an active member of IHRCA, NEHRA, SHRM, HRC, the Society of Professional Consultants, and the Human Resources Council. Ken contributes articles and book reviews to the Electronic Recruiting Exchange, Monster, HR Today, and several other professional organization newsletters and periodicals.

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Julie Cunningham, Manager, Global College Relations, Tellabs, Inc. Julie is a former board member of the National Association of Colleges and Employers. She speaks frequently on the programs and practices that have made Tellabs one of the premier benchmarks for college hiring.

Diversity - What You Need to Do to Tap "All" the Top Talent

PRESTON EDWARDS, IMDIVERSITY.COM

Top employers benchmark how diversity has become a core value to attracting and retaining top talent and keeping a competitive edge. Moderator, Preston Edwards, Chairman and CEO, IMDiversity.com, and Black Collegian Magazine, is nationally known for his 30 year commitment to diversity education. He has been honored by numerous organizations including the 1999 Pericles Award from the Employment Management Association.

What You Really Need to Know About Resume Management Systems or, How to Tell "Real Ware" from "Vaporware"

MARK MEHLER, MMC GROUP

The world's most competitive corporations discuss the pros and cons of choosing and using emerging technology tools and systems. Moderator: Mark Mehler, President, MMC Group. Mark is an international consultant on high-volume staffing processes, a sought after speaker at national recruiting conferences and co-author of CareerXroads.

Town Hall Forum: Pundits, Puns and Pulled Punches

GERRY CRISPIN, CAREERXROADS 2000; JOHN SULLIVAN, AGILENT TECHNOLOGIES; KEVIN WHEELER, GLOBAL LEARNING RESOURCES; PETER WEDDLE, WEDDLE'S

Four internet recruiting pundits square off in a "no-holds" barred debate on the future of employment. Who are the winners and losers in the employment space?

Internet Recruiting Strategies - TOOLS Overview:

BRET HOLLANDER, NETRECRUITER

Advanced sourcing strategies & techniques demonstrated from an actual day of recruiting by one of the best firms in the U.S. on sourcing any type of candidate. Witness actual software, as well as unique scripts and techniques to successfully develop relationships with potential candidates. TOOLS is intended for recruiters or sourcing specialists who have already mastered basic sourcing techniques through the use of fee-based sites, formula searching on engines such as AltaVista or Google, and have taken an existing all-day class on this topic by any of the top Internet recruiting training firms.

- Capture Tools
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- Learning Tools

Technology 2001 SUSAN HODGES, SEMCO

There is always something new going on in IT, but the new millennium seems even busier than usual. The internet is affecting everything that's being done and new products and skills appear daily. This session will look at the new technology in each critical area - platforms, development, data, communications and applications.

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TECHNOLOGY

AFFORDABLE FLAT PANELS

ViewSonic last week chopped the street price of its VE150 LCD monitor to \$499, becoming the first vendor to break the \$500 barrier. Reviews editor Russell Kay writes about the good news on the pricing front for those desirable flat-panel displays. **► 56**

SECURITY JOURNAL

To restrict access to his company's critical infrastructure, security manager Mathias Thurman decides to funnel traffic through a single server. But he soon learns that locking down access to the network infrastructure can cause unforeseen problems if you haven't done your homework. **► 58**

FUTURE WATCH

Scientists at Bell Labs have synthesized the first plastic superconductor. The superconducting polymer promises to eventually be less expensive and easier to use than superconductors based on other substances, but there are still substantial barriers to commercial use. **► 60**

EMERGING COMPANIES

Building a data warehouse can be enormously costly, but the need to analyze mountains of Web site activity data is strong. DigiMine reduces the IT investment by offering data mining as a service. **► 65**


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FINDING OUT WHERE THE CREDIT IS DUE

STEVE PARTRIDGE (ABOVE), director of the office of workforce development at Arizona's Department of Commerce, is responsible for implementing the country's first experiment with a technology training tax credit. Most important, he's concerned about which skills to include. He and his staff have spoken with approximately 40 trade associations, federal agencies and prominent IT individuals to get their views. A lot of people in other parts of the country are looking over his shoulder.

66

BRIEFS

Caldera to Support Linux, Change Name

Caldera Systems Inc. has announced that the upcoming version of its Caldera Open Unix 8 operating system will let Linux applications run atop its Unix kernel. Orem, Utah-based Caldera will release the operating system in the summer; pricing hasn't been announced.

Caldera has also said that it will change its name to Caldera International when its acquisition of the server software and services divisions of The Santa Cruz Operation Inc. is finalized this year.

Hotelier Moves Reservations Online

Las Vegas-based MGM Mirage Inc. has implemented SynXis Corp.'s reservation system at 10 of its hotel properties, serving more than 22,000 guest rooms. The SynXis product allows MGM Mirage to make real-time rate and availability changes for any property over the Internet and then have those changes show up in the reservation systems used by 300,000 travel agents worldwide. Consumers can reserve rooms directly through property Web sites.

McLean, Va.-based SynXis is an application service provider serving the hotel industry.

VA Linux Adds Remote Management

VA Linux Systems Inc. has announced its new VA Linux 100 add-on device, which provides remote management capabilities for rack-mounted server farms using VA Linux 1120 and 1220 servers. Each book-size add-on box can manage up to 42 server nodes, and multiple VA Linux 100 systems can be managed through a single interface, according to the Fremont, Calif.-based company.

The system monitoring units, which will be priced at \$995 each, let administrators view the power state of a system and turn it on or off. The units also detect fan alarms and feature flashing indicator lights that identify the location of the systems.

RUSSELL KAY

Flat-Panel Prices Dive

ALMOST ANYONE WHO'S used desktop flat-panel monitors prefers them to traditional CRTs. The only real drawback to these displays has been their high price tags: about \$1,000 for 15-in. units and \$2,500 for 17-in. and 18-in. displays. Even so, some

6.6 million LCD monitors were sold last year, and DisplaySearch, an Austin, Texas-based market research and consulting firm, projects sales of 12 million units this year, rising to 24 million in 2004.

ViewSonic Corp. in Walnut, Calif., last week chopped the street price of its VE150 LCD monitor to \$499, making it the lowest-priced flat-panel display on the market. Although a few 15-in. flat panels have sold recently for about \$500, the ViewSonic announcement marks the first time a major display manufacturer/vendor has officially crossed that line.

The monitor industry was expecting to reach this price point for flat-panel displays by the end of this year, but

ViewSonic's aggressive pricing move will have considerable impact and is likely to drive competitors to match that price sooner, not later.

Indeed, just two days after ViewSonic's price cut, NEC-Mitsubishi Electronics Display of America Inc. followed suit, cutting the street price of its MultiSync LCD1530V 15-in. flat panel by \$200, to \$549. The Itasca, Ill.-based vendor also lowered the price of its LCD1830 and LCD1800 18-in. flat-panel monitors by 40%, from \$1,899 to \$1,149.

At \$499, a 15-in. LCD display now becomes an affordable alternative to high-quality 17-in. CRT screens costing \$300 to \$400. In addition, flat-panel displays offer operating savings over traditional monitors: Their ener-

gy consumption is typically 25% that of a comparably sized CRT monitor, and they require much less space on a user's desktop.

The cuts are especially welcome because prices rose as much as 70% in 1999 due to a shortage of LCDs that resulted from a lack of capital spending by flat-panel makers in 1998.

Also last week, IBM showed off its extensive new line of flat-panel monitors, including its value leader, the T540, a 15-in. unit priced at \$599; a touch-screen model; and a new 17-in. model, the \$1,269 T750, which has both digital and

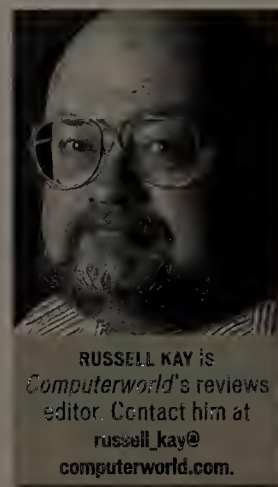
analog inputs.

Topping the IBM lineup is a remarkable 20.8-in display, the T210, which features unprecedented resolution of 2,048 by 1,536 pixels (called the Quad Extended Graphics Array standard). It will display as much detail as four 15-in. flat panels, two full high-resolution pages side by side or many nonoverlapping windows. The display uses smaller pixels to deliver an incredibly sharp and detailed image. To see this monitor is to lust after it.

The only factor that will prevent it from selling widely is its hefty price tag of \$5,929.

The 17-in. models should prove to be popular because it offers users the same 1,280-by-960 pixel resolution and almost the same viewing area as

18-in. flat panels, but at less than half the cost. Their lower prices are a result of economies of manufacturing, with higher yields and lower waste. ▀



RUSSELL KAY is Computerworld's reviews editor. Contact him at russell_kay@computerworld.com.

Web Driving Demand for Integrated Apps

BY LEE COPELAND GLADWIN

The growing corporate demand for Web services is accelerating IT's shift to component-based software. But the process is complex and time-consuming, and the software architects needed to design these applications are in short supply.

"Despite what the vendors claim, the whole business of tying together applications and facilitating better integration with back-end systems is still very complicated," said Gary Barnett, an analyst at London-based Ovum Ltd.

There are benefits to implementing Web services, but "to make functionality available to the outside world, companies have to ensure they can maintain these systems and that they won't break every time they make a change," Barnett said.

"Good architecture lays out the blueprint for continued investments into an application," said David Harvey, associate director of IT and technical architect at UBS Warburg LLC, an \$8 billion investment bank in London. Harvey said the bank is implementing Sun Microsystems Inc.'s Enterprise Java technologies, which offer the advantage of reusable Enterprise JavaBeans.

But that strategy also makes it more difficult to revise the application blueprint and "bridge fences" across businesses' boundaries with Web services, he said.

PG&E Corp., for example, is in the midst of networking many of its individually built applications into a more coherent infrastructure, said Billy Glenn, principal Internet architect at the San Francisco-

based public utility.

"The problem that we have is that many of our Internet-based applications were [one-of-a-kind], so they have their own authentication and security," he said.

Each application also has its own method for extracting data from back-end legacy sys-

tems and databases. Glenn said one of his top priorities is implementing standard protocols across the utility's wide application set to make sharing data among different programs more uniform.

The high cost of maintaining applications is another concern that prompts greater emphasis on having a sound application architecture.

The growing emphasis on architecture has as much to do with building new applications that take advantage of initiatives like Web services as with maintaining these applications once they have gone into production, according to Murry McEntire, lead architect at WorldCom Inc.

"It may take a year or two to build an application, but it will be out in the field for a number of years past that," McEntire said. "For the lifetime of [a custom-built] application, the maintenance will far outstrip the costs of developing it." ▀

Architects Wanted

Software architects are in demand because they:

- ▶ Make systemwide decisions about application infrastructures.
- ▶ Determine the functional requirements of new applications.
- ▶ Evaluate the impact of changes on applications and computing environments.

NetQoS Offers Traffic Cop Service for Corporate Networks

BY SAMI LAIS

IT managers exasperated by out-of-control network traffic who are about to throw bandwidth at the problem are the target audience for a new combination of software and services from NetQoS Inc. in Austin, Texas.

NetQoS works with organizations to identify problems and create relevant network usage profiles, which can be defined based on application or user, said Joel Trammel, the company's CEO.

Running on a Web server on an organization's internal network, NetQoS's NQVisionQuest uses data from the customer's existing Simple Network Management Protocol probes to create near-real-time reports on usage.

New York-based Schlumberger Ltd. began using the reporting function in January last year. "We'd instrumented our network with 43 wide-area probes around the world," said Maged Elmenshawy, a senior engineer at the energy services company, also in Austin. "But we didn't have an easy way to access that information or understand what it means."

The NetQoS traffic reports are accessible via Web browser, making them easy to use from anywhere, which is critical for a network as large as Schlumberger's, he said.

The reports update on a continuous cycle. "The data is pre-generated. It's always waiting there for us to grab it — no waiting for queries," Elmenshawy said.

When he first began using the tool, Elmenshawy said, he "found all sorts of interesting things." For example, a network backup that was supposedly running at night was found to be running during peak hours, saturating ports. Schlumberger was able to use its routers to throttle the backup and let through critical application traffic, Elmenshawy said.

Another NQVisionQuest user became aware of 20GB of daily wide-area network traffic from internal users downloading MP3 music files and external users pulling MP3 files from employee PCs, according to Trammel. Instead of increasing bandwidth, the company simply shut down the MP3 traffic.

"I've talked with [NQVisionQuest] users," said Dennis Drogseth, an analyst at Enterprise Management Systems Inc.

in Boulder, Colo. "They like the robustness of the analysis, the flexibility, the scalability, the mapping to their organization."

Each customer is assigned a NetQoS support person who can use remote monitoring tools over a virtual private net-

work or other secure connection to monitor the company's network and help tune it on a weekly basis.

Pricing for NQVisionQuest starts at \$15,000 per month for up to 50 network probes. ▀

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Server Lockdown Locks Out End Users

An effort to restrict access to a company's production servers has unintended consequences

BY MATHIAS THURMAN

THIS HAS BEEN a rough week. It all started when I decided that I needed to lock down administrative access to our production network. Unfortunately, all didn't go according to plan.

My company's hosted application lives on approximately 50 servers that reside in a data center on the other side of town. Our production environment is considered critical; therefore, administrative access to these machines must be strictly controlled.

However, prior to my arrival at the company, everyone from the remote sales offices to the corporate marketing department had direct administrative access to the production environment. This was unsatisfactory, as only about 25 employees need access to this environment. I had no doubt that unrestricted access would eventually lead to problems — a very scary and potentially career-ending situation for any security manager.

I contemplated a variety of methods to control administrative access before settling on this one: I would funnel all administrative access to the production servers through a single point. That point would be the "gateway," a highly secured server that would reside on its own segregated network. I built two Unix servers and called them Gateway 1 and Gateway 2. Gateway 1 would be the primary server, while Gateway 2 would function as a spare. Then I locked the servers down, stripping them of unnecessary services such as Telnet, file transfer and e-mail.

Next I installed the Ace/Agent for SecurID token-based authentication from RSA Security Inc. in Bedford, Mass. SecurID tokens provide two-factor authentication. In other words, after users provide a valid user identification and password to a system, they must then input an additional level of au-

thentication that consists of a personal identification number followed by the number displayed on the SecurID token. The displayed number changes every 60 seconds and is tied to a central server I've installed on a protected secure network, rightfully dubbed SecNet. In addition, I installed the latest commercially supported version of Secure Shell (SSH) for encrypted administration.

Then I installed a little freeware utility called Idled (pronounced idle-dee). Idled is really cool. One of my fears is that an administrator will get access to Gateway 1 and then leave for lunch or for the night without logging out of the system. If the user isn't using a password-protected screen saver, then it would be easy for someone, such as a cleaning person, contractor or disgruntled employee, to walk up to that person's desktop and access the production environment. Idled tracks idle sessions and times them out after a specified interval.

I then had one of the network engineers configure the firewall so the gateways would be the only servers that could access the production environment. Prior to the firewall configuration, I contacted each department to discuss their requirements for access to that network. For example, the operations center needs to monitor the production network. Engineers need to push code updates to certain production machines. Database administrators need to access certain ports for database administration. Our application has a special administrative tool for setting up and administering customer accounts. And the list goes on. I spent about 150 hours working on this, until all the necessary access to the production network was addressed. Or so I thought.

We applied the firewall access rules during our change control window on Thursday evening. I spent Friday morn-

ing, the weekend and now all this week addressing the access issues that folks either didn't think about or didn't address during the meetings I held with the different departments.

What Went Wrong

For certain applications, it's important to know which ports need to be allowed through the firewall for a certain function. Ports are channels by which services on the Internet operate. For example, SSH listens on Port 22. In order for SSH to connect to a server, the firewall must allow communication through Port 22. Web access needs Port 80 opened. Sendmail, which is used for e-mail, runs on Port 25.

Each standard service runs on a specified port, and there are 65,535 available ports on the Internet. The first 1,024 are reserved for the standard services, while the rest are generally up for grabs. Custom and third-party applications can be written to run on almost any port. If you're interested in this, you can read the Internet Engineering Task Force's request for proposals about Internet assigned numbers.

Anyway, the rush of e-mails, pages and phone calls that started after we implemented the new system came because some people lost access to some functions on the network. These people were accessing ports that weren't being allowed through the firewall. The firewall had blocked specific workstations from accessing certain servers on the production network.

In order to address the access problem, we had to decide between two options. The first was to call the firewall vendor and ask which ports needed to be opened on the firewall for the applications to function properly. The other option was to watch traffic on the firewall and capture the dropped packets to determine which ports the firewall was blocking. We chose the latter.

By watching traffic at the firewall for dropped packets, we were able to see which ports were blocked. We then applied the appropriate rules to the firewall to allow that traffic to pass and had the end users attempt to access the applications again. We had to go back and forth a few times before we got it right. I don't know if this was the most efficient solution, but it worked.

Administrative access to critical infrastructure is one of the most neglect-

THISWEEK'S GLOSSARY

SecurID token: A number randomly assigned by a device the size of a credit card. The SecurID token can be used with a personal identification number to provide an additional level of authentication for resource access.

LINKS:

www.ietf.org: The site for the Internet Engineering Task Force, which organizes working groups that develop the standards for determining how the Internet works. The groups consist of engineers, operators, vendors and researchers who write requests for comment that dictate how certain technology, applications and protocols should be built and configured.

www.gocsi.com: The Computer Security Institute's Web site gathers statistics on all types of computer crimes in its annual survey.

www.isi.edu/in-notes/iana/assignments/port-numbers: Some standard Web server ports are reserved for special uses. This link is handy when you're trying to determine which service runs on which port. It divides port numbers into three groups: well-known ports (0 to 1023), registered ports (1024 to 49151) and dynamic or private ports (49152 to 65535).

www.rsasecurity.com/go/linux.html: RSA Security's registration and download page for the Ace/Agent for Linux.

www.darkwing.com/idled/: Visit this link to download Idled, Mike Cridder's free utility that tracks idle user accounts and automatically logs them out. You can also use it to restrict multiple log-ins under the same account or to block accounts.

ed areas of security. Most companies concentrate on the external threat of someone hacking their Web page or getting some sort of unauthorized access. The Computer Security Institute in San Francisco, which collects data on computer crimes in an annual survey, claims that the threat of an employee hacking from inside a company is much greater than the external threat. I have to agree. For our company, internal threats such as a disgruntled employee, corporate espionage or hacking for personal gain are much more of a threat than some college hacker. With this issue out of the way, I'll be tackling access control. It'll be my next focus regarding our critical servers. ▀



SECURITY MANAGER'S JOURNAL

VPN-1 is easier to manage

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Plastic, Fantastic Superconductors

New polymers lead to lower costs and higher performance, scientists say.
By Jaikumar Vijayan

A SUPERCONDUCTING plastic developed recently promises to be a relatively inexpensive and easier-to-produce option to existing superconductors — but it won't be ready anytime soon, according to experts.

Developed by scientists at Murray Hill, N.J.-based Bell Labs (the research and development arm of Lucent Technologies Inc.) plastic superconductors could one day be used in applications such as communications, utilities, transportation, quantum computing and superconducting electronics, says Richard Greene, director of the Center for Superconducting Research at the University of Maryland in College Park.

Superconductors made of organic polymers such as plastics promise to be inexpensive and easier to use than current

superconductors, which are based on pure metals and ceramics, says Greene.

"[It] is the first demonstration of superconductivity in this class of materials," says Alan J. Heeger, a Nobel laureate and professor at the University of California, Santa Barbara. "Now that we have a successful experimental approach and initial success, we can begin the process of trying to understand what is required at the molecular scale to enhance the superconductivity."

But getting there will mean overcoming some daunting physical and technological challenges, Greene says.

Superconductors are materials that offer no resistance to electricity when cooled to extremely low temperatures. Once a current is produced in a superconductor, it flows with no measurable loss of energy and no heat generation.

As a result, electrical wires, transformers and motors made with such materials would run more efficiently and with significantly more power than other electrical conductors.

Very Cold Beginnings

Superconductivity was first demonstrated in 1911 by Dutch scientist Heike Kamerlingh Onnes, who used liquid helium to cool mercury to about 4 degrees Kelvin (minus 277 degrees Celsius). The metal lost all resistance to electricity at this temperature, which is just a few degrees above absolute zero — the coldest temperature possible.

Since then, advances in the field have resulted in the development of materials that superconduct at about 92 degrees Kelvin using liquid nitrogen as a coolant, which makes them far more commercially viable than those that use liquid helium.

Today, such high-temperature superconductors are used in a variety of applications, ranging from magnetic resonance imaging scanners to magnetic levitation trains.

Superconducting materials promise billions of dollars in energy savings via new high-tension power lines, fusion reactors and electric generators and motors.

One future application is likely to be in the area of quantum computers, says Ananth Dodabalapur, a Bell Labs scientist involved in the superconducting plastic project.

Unlike conventional computers, a quantum computer will use a logical system that is based on zeros, ones or a combination of both. That is expected to result in much faster computational speeds than today's computers, which use a logic based on either zeros or ones but not both.

"It may lead to new methods of building electronic circuits."

says Dodabalapur. "One intriguing possibility is the combination of quantum information processing with polymers and conventional computing."

The Bell Labs breakthrough is the result of a 20-year quest to find organic polymers that act as superconductors, says Dodabalapur.

Organic polymers are chemical molecules that contain a long string of carbon atoms. Their biggest advantage over other superconducting materials is that they are much more flexible than brittle metals and ceramics and are easier to manufacture and far cheaper, says Greene.

While researchers have long known about the ability of some organic polymers to conduct electricity, they have up to now been unable to create a superconductor with them, Greene says. The problem is due largely to the fact that polymers have a molecular structure that prevents the electronic interactions needed for superconductivity.

Rearranged Molecules

Because of this, to get the plastic polythiophene to superconduct, scientists at Bell Labs rearranged its innards "so that polymer molecules stacked up against one another," according to a statement. "Instead of adding chemical impurities to change the material's electrical properties, as is often done, the researchers used a novel technique in which they removed electrons from polythiophene."

But it's going to be a long time before the plastic is going to be ready for prime time commercially, Greene says, because the temperature at which the polythiophene became superconducting was extremely cold, about 3 degrees Kelvin. The difficulties in cooling materials to such extremely low temperatures currently prevent superconductivity from being commercially viable, Greene says.

For the promise to be fulfilled, researchers now need to figure out a way to make organic polymers superconduct at much higher temperatures.

"If you could have a superconductor at room temperature, that would really be the Holy Grail," Greene says. But that's probably more than 10 years away, he notes. ▀



ANANTH DODABALAPUR (right, with Christian Kloc and Zhenan Bao), a scientist at Bell Labs, says superconductors could be used in quantum computers, which would lead to much faster computational speeds.

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EMPLOYEES AT AETNA'S Operational Services Central Support Area are responsible for 21.8 tons of data (i.e., 174.6TB): Michael Mathias, Nancy Tillberg and Renee Zaugg (left to right).



AMY ETRA

Managing TONS Of Data

HOW MUCH DATA do large corporations manage? Tons of it. Referring to "tons" of data may be intuitive for paper records, but it's an unusual way to describe computer-stored information, which is usually measured by character counts and file sizes. Still, using *ton* may give an added sense of how much data a terabyte is. To be sure, measuring data by the ton isn't definitive because a disk drive's weight doesn't vary significantly over a wide range of storage capacities, but it's a handy starting point. A common 8GB hard drive weighs a little more than 1 lb. Figure that the weight of a shared enclosure, power supply and electronics will roughly double the drive's weight, and we can say that 8TB of data is approximately equivalent to 1 ton. That much storage is cumbersome and ungainly.

How does an enterprise deal gracefully and effectively with such unwieldy mountains of information? We asked four data-intensive companies — Aetna Inc., The Boeing Co., Atos Origin and AT&T Corp. — to tell us about the problems they faced in managing massive data stores, and how they solved them. For each company, the data is a significant corporate asset resulting from huge investments of time and effort. The data is also the source of many trials and tribulations for the employees who keep vigilant watch over it.

While these companies say that good tools are important for managing terabytes of information, their IT and database administrators also agree that having a clear and comprehensive perspective on the data, via both logical and physical views, is even more critical. Security, data integrity and data availability aren't trivial concerns, they point out, and giving users easy access to the data is a never-ending job.

Insuring a Healthy 21.8 Tons

On a daily basis, Renee Zaugg, operations manager in the operational services central support area at Aetna, is responsible for 21.8 tons of data (174.6TB). She says 119.2TB reside on mainframe-connected disk drives, while the remaining 55.4TB sit on disks attached to midrange computers running IBM's AIX or Sun Microsystems Inc.'s Solaris. Almost all of this data is located in the company's headquarters in Hartford, Conn. Most of the information is in relational databases, handled by IBM's DB2 Universal Database (Versions 6 and 7 for OS/390), DB2 for AIX, Oracle8 on Solaris and Sybase Inc.'s Adaptive Server 12 on Solaris. To make matters even more interesting, Zaugg adds, outside customers have access to about 20TB of the information. Four interconnected data centers containing 14 mainframes and more than 1,000 midrange servers process the data. It takes more than 4,100 direct-access storage devices to hold Aetna's key databases.

Most of Aetna's ever-growing mountain of data is health care information. The insurance company maintains records for both health maintenance organization participants and customers covered by insurance policies. Aetna has detailed records of providers, such as doctors, hospitals, dentists and pharmacies, and it keeps track of all the claims it has processed. Some of Aetna's larger customers send tapes containing insured employee data, but Nancy Tillberg, head of strategic planning, says the firm is moving toward using the Internet to collect such data.

"Data integrity, backup, security and availability are our biggest concerns," Zaugg says. Her data handling tools, procedures and operations schedules have to stay ahead of not only the normal growth

that results from the activities of the sales, underwriting and claims departments but also growth from corporate acquisitions and mergers.

Like Atos Origin and Boeing, Aetna uses IBM's Virtual Tape Servers (VTS) to reduce its tape drive bottleneck. Zaugg says Aetna has used VTS to shrink its tape library from almost 1 million volumes to just under a quarter of that amount. She emphasizes that the major impetus for the consolidation was the time required for tape processing and handling, not the cost of tapes.

Since DB2 V6 doesn't support hot backups, the operations area has to take the DB2 V6 systems off-line to make backup copies. VTS lets Aetna drastically cut the time it takes to back up the DB2 V6 and other data, which increases the time the data is available to users. "Aetna's goal is to soon have hands-off tape operations on its mainframe computers," says Tillberg.

She adds that Aetna has a server consolidation effort under way to reduce the effort necessary to man-

Terabytes of data have **considerable inertia**, occupy a lot of physical space and require **"earth mover"** computers. Here's how four companies deal with **massive storage**.
By Barry Nance

age data on the midrange machines. "Nonetheless," she says, "the need for server load balancing won't go away soon." For its Web servers, Aetna uses Sunnyvale, Calif.-based Resonate Inc.'s Global Dispatch to distribute HTTP traffic to the nearest available server that's least busy. Tillberg says she likes the way Global Dispatch manages mirrored Web servers located not only in the same room but also in geographically dispersed locations.

Tillberg also says the company is increasing its use of storage-area network (SAN) technology to centralize and streamline the management of that data. She points out that Aetna uses Global Enterprise Management software from Tivoli Systems Inc. in Austin, Texas, to monitor the network, distribute files and track data usage.

Aetna's database administrators maintain the more than 15,000 database table definitions with the ERWin data modeling tool, according to Michael Mathias, an information systems data storage expert at Aetna. Manual upkeep of the table definitions became impossible years ago, he says. Mathias sees the importance of viewing the maintenance of large amounts of data from a logical perspective. While the physical management of large data stores is cer-

tainly a nontrivial effort, Mathias says that failing to keep the data organized leads inexorably to user workflow problems, devaluation of the data as a corporate asset and, eventually, customer complaints.

Tons of Flying Data

LeaAnne Armstrong, director of distributed servers at Seattle-based Boeing, makes sure the approximately 50TB to 150TB (6 to almost 19 tons) of data the company owns remains as reliable and safe as the aircraft and spacecraft the company builds. She says the 50TB to 150TB estimate reflects Boeing's inability to know exactly how much data exists on its 150,000 desktop computers. Users don't necessarily store their data files on a server, which makes quantifying Boeing's data stores difficult, she says.

Like Aetna, Boeing has tens of mainframes and thousands of midrange servers running Unix and Windows NT. "Much of the data exists in relational form," Armstrong says, "but across the enterprise, Boeing uses virtually every file format known to man." According to Armstrong, Boeing's files run the gamut from Adobe Portable Document Format to computer-aided design and manufacturing machine and part descriptions. The relational databases are DB2 on the mainframe, Oracle on the Unix (HP-UX, AIX and Solaris) midrange machines and either SQL Server 7 or SQL Server 2000 on the smaller Intel-based Windows NT computers.

For Boeing's diverse terabytes, Armstrong shares Zaugg's basic concerns: data integrity, backup, security and availability. The two companies have similar philosophies and approaches to handling large amounts of data. Like Aetna, Boeing uses IBM's VTS to cache and manage its mainframe tapes and tape devices. Boeing plans to use SAN technology in the near future and to consolidate midrange servers rather than let them proliferate.

Armstrong also says effective use of virtual tape or any other hierarchical storage management (HSM) scheme depends on identifying the categories of data within the enterprise and treating each category appropriately. For example, she warns, Boeing makes a subtle but important distinction between backup tapes of transactional content vs. archive tapes of static aircraft design and manufacturing files. She says data must be classified carefully to get the most value from virtual tape.

Boeing's data stores are spread out across 27 states and a few overseas locations, but most computing takes place in the Puget Sound area of Washington. Armstrong says the company currently has dozens of different backup and restore software utilities. Each department buys its own backup media and performs its own backup and restore operations. A major data loss hasn't happened yet, says Armstrong, but she's aware of the risks and plans to centralize the backing up and restoring of files in the future.

Armstrong says she hopes the hard disk, optical disk and tape drive manufacturers will eventually offer Boeing vendor-neutral and highly interoperable data storage. Furthermore, although hard disks are inexpensive these days, Armstrong says data management costs on a per-disk or per-tape basis are high enough that she wants to significantly reduce the amount of disk and tape "white space" — the portion of the media that Boeing doesn't use.

Virtual tape technology helps, she says, but she wishes that all Boeing's tapes and disks were based on a "storage-on-demand" model, whereby Boeing could simply rent whatever capacity it needed from an outside vendor and not have to worry about running out of space.

Managing TONS Of Data

Phone Calls Galore

Mark Francis, enterprise architecture director at AT&T, manages several terabytes of information. One of his biggest data stores is a multiterabyte mainframe DB2 database containing phone-call detail. When an AT&T customer makes or attempts to make a call, the switching equipment automatically inserts a new row in the huge database.

For Francis, however, the company's new 650GB operational database of customer data, work orders and billing data is more interesting. He says the company is merging diverse databases of various kinds of customer data into a single, cohesive and consistent database. The project is well under way. "The goal is for everyone within AT&T to have one place to go to get any and all customer data," says Francis.

In the past, IMS-DBDC, DB2, Oracle and Informix Corp. systems were all used to control access to parts of the data, but Francis and his group have chosen Oracle to be the single repository for the new consolidated customer database.

Mirrored across two data centers located in Georgia and Missouri, the new customer data store resides on Sun Ultra 10000 computers. Sun Ultra 5500 computers perform data backup chores, and the two data centers are optically linked to allow fast fail-over among the machines should disaster strike. Francis says the company allots Sundays for doing full backups and performing software maintenance. AT&T uses Veritas Software Corp.'s NetBackup to make copies of the customer database. While backing up Oracle redo logs provides an ongoing incremental copy of the data, Francis says the process is time-consuming, and he wishes it weren't such a bottleneck.

Francis schedules periodic fire drills to ensure that each of the two data centers can fail-over quickly and painlessly. He points out that managing large data stores across multiple data centers means more than just monitoring hard-disk devices. "At fail-over time, an entire data center — computers, storage, computing infrastructure and network connections — must pick up the workload without skipping a beat."

To handle large data stores efficiently, Francis suggests, "Don't underestimate the time it takes to get the data model — i.e., the schema — and the operational environment correct." Like Aetna's Mathias, Francis stresses the importance of an accurate and well-organized logical view of large data stores.

Terabytes That Follow the Sun

Mark Eimer, director of global automation tooling at Atos Origin, is responsible for about 300TB (37.5 tons) of other people's data. The majority of the data is relational, but, like Boeing, the Paris-based company stores thousands of different file formats. Atos Origin provides outsourcing services and data operations for other companies. Eimer says one Atos Origin customer is itself an enterprise with 130,000 employees. These users access several

terabytes of Lotus Notes data on 600 servers.

Atos Origin manages 22 global data centers for hundreds of outsourcing clients with many hundreds of thousands of users in 31 countries. The company's data centers, which are located primarily in Dallas, Singapore and the Netherlands, house 60 mainframes and about 5,000 midrange servers. Sixty percent of these midrange machines run Unix (AIX, Sun Solaris, Hewlett-Packard Co.'s HP-UX and DEC Unix) and IBM's OS/400, while the remainder run either Microsoft Corp.'s Windows NT or Novell Inc.'s NetWare. Most of the machines are application-specific processors for enterprise resource planning and other vertical market systems.

Atos Origin employs 27,000 people, but it has more than 60 highly skilled operations people at seven sites around the world to manage the mainframe and midrange processors. Eimer says his organization has the skills and experience to handle large data stores because Atos Origin works hard to ensure a consistent, standard computing environment. "We adhere to stringent standards that we created for ourselves for how we run our servers," remarks Eimer.

For backing up and restoring huge amounts of data, Origin uses Tivoli's Storage Manager as well as Legato Systems Inc.'s products, Computer Associates International Inc.'s ARCserve and HP's OmniBack. Eimer says that while Atos Origin will use whatever software tools a customer wants, it prefers Tivoli's Enterprise suite for managing multiple mainframe and midrange computers and IBM's VTS for mainframe-attached tape drives.

Because Atos Origin is an around-the-clock, follow-the-sun processing environment spread around the globe, the company's network is especially critical. Eimer says he uses IBM's NetView and NetScout Manager Plus to help keep the server's network connections healthy.

Minding the Store

If managing gigabytes of data is like flying a hang glider, managing multiple terabytes of data is like piloting a space shuttle: a thousand times more complex. You can't just extrapolate from experiences with small and medium-size data stores to understand how to successfully manage tons of data. Even an otherwise mundane operation such as backing up a database can be frightening if the time needed to finish copying the data exceeds the time available.

Data integrity, backup, security and availability are collectively the Holy Grail of dealing with large data stores. The sheer volume of data makes these goals a challenge, and a highly decentralized environment complicates matters even more. Developing and adhering to standardized data maintenance procedures in your organization will not only give you the best return on your data dollar investment, but also let you sleep well at night.

Multiple terabytes of the most pampered, best-maintained data in the world are just a slag heap of bits without accurate, meaningful data definitions and schemas. When you analyze your company's operating procedures for administering large data stores, make sure you incorporate the definitions of that information (such as ERWin or PowerDesigner Data Architect model files) in your plan. Together, the data and its definitions are a corporate asset that contributes to your company's bottom line, and that you likely couldn't do without. ▀

Nance is a software developer and consultant in Wethersfield, Conn., and author of Introduction to Networking, 4th Edition (Que, 1997).

Tips for Managing Large Data Stores

1

Be selective in how you implement HSM. Instead of blindly giving all your data to a robotic HSM process, **analyze** and **classify** your company's data usage to know how often the data is reused and thus when HSM might be appropriate.

2

The **logical view** of your data is just as important as the **physical view**. Knowing which data elements are duplicated in your database and why tells you not only the **degree of normalization** but also what fraction of the database is involved in purely **redundant I/O**.

3

Perform data backup/restore fire drills **periodically** and **religiously** to make sure you don't lose lots of data to human error or **natural disaster**.

4

Recognize that you may have to develop your own **transaction-aware** backup software — especially if you have a growing database and your relational database engine doesn't support **hot backups**. It's not funny when you run out of time for making off-line backup copies.

5

Carefully segregate externally visible data from your internal data, for security purposes. **An ounce of prevention** is worth a ton of cure.

Finding Answers In Data Haystacks

DigiMine offers data warehousing application as a hosted service

BY MARK HALL

BUILDING A DATA warehouse is a major strategic initiative that can cost millions of dollars and consume enormous amounts of IT resources. Yet the demand for data warehouses has never been higher because e-business has created data mother lodes that companies are anxious to exploit.

That's why the founders of Bellevue, Wash.-based digiMine Inc. jumped in with their application service provider (ASP) delivery model for warehousing and mining of Web data.

Bassel Ojeh, digiMine's co-founder and chief operating officer, says, "It's not so much designing a schema or implementing a data warehouse that's the issue, although that's not easy. The real problem with data warehouses is operational — the day-in, day-out running of them."

DigiMine's "hosted service for data mining of Web information is a good idea," says Peter Urban, an analyst at AMR Research Inc. in Boston. At the very least, he says, the ASP approach improves IT overhead by eliminating database administrators, dedicated on-site hardware and the developers needed to write the data mining algorithms.

Turning Data to Dollars

Dialpad Communications Inc., a 1-year-old Santa Clara, Calif.-based provider of voice services over the Internet, wanted to launch a new product outside the U.S.

"We needed to know what was our users' No. 2 language," says Christina Pate, the company's market research manager. With a 1.3-billion-minute call log among 12.5 million users, she had no shortage of data to sift through. But building a data warehouse would take a

year, and she would have had to hire an algorithms developer to mine the data. "We decided it was better to outsource," she says.

After Dialpad signed on with digiMine and got set up, the ASP's data mining query tools took just one day to determine

that Spanish is the second most commonly spoken language among Dialpad customers. That discovery led to a timely launch of Dialpad's new Internet phone service.

Sarah Van Dyck is vice president of marketing at Etrieve Inc. in Hillsboro, Ore., which links mobile professionals using personal digital assistants, cell phones and other devices to, say, customer information locked in corporate servers.



DIGIMINE OFFERS an alternative to running your own data warehouse, say Bassel Ojeh (left), Usama Fayyad and Nick Besbeas.

digiMine Inc.

Location: 10500 NE 8th Street, 13th Floor, Bellevue, Wash. 98004

Telephone: (425) 216-1700

Web: www.digimine.com

The technology: Data warehousing, data mining and business intelligence services for Web-based data

Why it's worth watching: Its pay-as-you-go service makes data mining and analysis more practical and affordable. It offers useful analytic tools to apply to Web data.

Company officers:

- Usama Fayyad, CEO, president and co-founder
- Bassel Ojeh, chief operating officer and co-founder
- Nick Besbeas, executive vice president of sales and marketing and co-founder

Milestones:

- March 2000: DigiMine incorporated

• October 2000: Services launched

Employees: 120

Profitability date: 2002 (projected)

Burn money: \$25 million from Internet Capital Group, Mayfield Fund and others.

Products/pricing: DigiMine's analytic services start at \$10,000 per month; campaign response analytics start at \$2,500 per month.

Customers: Nordstrom Inc., AtomShockwave Corp., Etrieve, Dialpad Communications and others

Partners: EMC Corp., Exodus Communications Inc. and Microsoft Corp.

Red Flags:

- Is your organization comfortable handing over proprietary customer data to a third party?
- DigiMine doesn't currently integrate non-Web data into its data warehouse analytics services.

DigiMine's easy access and array of reporting tools help Van Dyck track the success or failure of her company's online advertising campaigns, enabling her to determine the most cost-effective places to promote Etrieve's services.

"They have more reports than I'll ever be able to use," she says, "and they keep releasing more."

Part of digiMine's strategy is to "constantly refresh the product every eight weeks or so," says digiMine CEO and co-founder Usama Fayyad.

Because digiMine is an ASP, there's no disruption for users. "They simply log in in the morning, and there's a few new reports to choose from as part of their regular monthly fee," says Fayyad.

DigiMine does require some setup. Users must install its DataSlurper software on their Web servers and configure it through a point-and-click menu to grab data and send it in batch mode to a data warehouse designed for them by digiMine. Customers connect with a browser to choose reports that reveal, for example, the top 10 Web sites that bring buyers to their sites.

Bumps in the Road

Wayne Eckerson, director of education research at The Data Warehousing Institute in Seattle, says digiMine faces a few hurdles.

Corporations may be reluctant to hand over data to a start-up. And larger enterprises will want to analyze Web data with other sources of corporate information, which requires tools that digiMine doesn't currently offer.

For its part, digiMine claims that it will offer data mining programs for other types of data in the future. And customers like Pate say they're pleased with digiMine's ability to provide answers quickly.

"We get results from our data mining in a day," says Pate. The speedy turnaround helped Dialpad to immediately aim its new service at Spanish speakers, so it could start generating revenue as fast as possible.

"Business users are always asking questions about the data," says Ojeh. "Getting the right answers is what's important." ▀

the buzz

STATE OF
THE MARKET

One Size Fits All?

The data warehousing and data mining applications market, which Framingham, Mass.-based IDC lumps together with data management tools and information access software, grew 26% last year to \$5.3 billion.

Traditionally pricey tools used by major consumer-oriented companies, data warehousing tools for Web-based data are now available through digiMine as a relatively low-cost service.

As an application service provider, digiMine doesn't have any direct competitors yet. But the company faces cultural hurdles within corporate IT, along with competition from established and new players.

Perhaps the biggest obstacle facing the start-up is what Wayne Eckerson, director of education research at The Data Warehousing Institute, calls IT's corporate cultural reluctance to hand over customer data to outsiders.

There's also the ongoing problem of privacy. Many people feel Web-based businesses are getting to know too much about the behavior of site visitors.

The Web Log Crunchers

DigiMine is facing off against firms that offer tools to crunch Web log files.

For example, Net Perceptions Inc. in Edina, Minn., has its E-Commerce Analyst and Personalization Manager product, which can also analyze data from other sources, such as point-of-sale operations, and feed results in real time to call center operations to help with cross-selling programs.

But Net Perceptions' products can cost as much as \$200,000, and they require a Unix server and staff to run the in-house software.

The Traditional Players

Established data warehouse software vendors, such as France-based Business Objects SA, Ottawa-based Cognos Inc. and Denville, N.J.-based Micro Strategies Inc., have extensive front-end and back-end application portfolios that run on high-end systems, are expensive and require ongoing support.

But these vendors' data mining tools can evaluate more than Web traffic data, which is digiMine's initial focus. They have a rich set of query, data visualization and reporting tools that can answer just about any question a market researcher can apply to the data.

In the long run, these companies could pose the biggest threat to digiMine — if they ever decide to move to a pay-as-you-go service provider model.

— Mark Hall

STEVE PARTRIDGE has been hunkered down for the first few months of the year, trying to figure out just which technology skills are in short supply and which are critical to economic development in the state of Arizona. He and his staff have spoken with some 40 trade associations, federal agencies and prominent IT individuals to get their views.

A lot of people in other parts of the country have been looking over his shoulder. Partridge, director of the office of workforce development at the state's Department of Commerce, is responsible for filling in the fine print for implementing the nation's first experiment with a technology training tax credit. Most important, he's concerned about which skills to include.

Passed and signed in Janu-

ary, the law was considered a significant victory in the battle against the IT worker shortage. Several states across the U.S., as well as the federal government, are keeping a close eye on the results in the Grand Canyon State.

But while many outside of Arizona are fascinated with the new law, the people whom the bill is meant to affect — heads of IT departments at small and midsize companies in the state — apparently have no idea that the law was passed and thus have no intention of taking advantage of it.

This is the struggling start of the IT training tax credit movement, which is becoming a sequel of sorts to the H-1B visa expansion of last year.

At both the national and state levels, lawmakers are pushing legislation that would use the tax code to encourage workers to learn IT skills. Sup-

porters say this is necessary to fill the ongoing technical worker shortage. Skeptics argue that companies are trying to foist their expenses onto the government.

At the national level, Rep. Jerry Weller (R-Ill.) plans to reintroduce the Technology Education and Training Act he proposed last year. The legislation would give a \$1,500 tax credit to businesses or individuals for IT training expenses. Sen. Kent Conrad (D-N.D.), who introduced a similar bill on the Senate side last year, will file a tweaked version later this year, according to a source in his office.

"The purpose behind this legislation is to have some alternative to relying on foreign workers to fill the hundreds of thousands of [unfilled] IT jobs," says Ben Fallon, a spokesman for Weller. "Everyone realizes that we are short

of trained workers and that it is only going to get worse."

Arizona's new law gives businesses in the state a tax credit for half of all IT training expenses for as many as 20 employees, up to \$1,500 per employee per year. That won't mean much to large employers in the area, like Motorola Inc. and American Express Co., but it's directed at smaller employers like Orthologic Corp. in Tempe.

Orthologic has a 12-person IT staff that makes frequent use of various training providers, which makes the company a perfect candidate for the tax credit. Nevertheless, until recently, Chuck Murphy, Orthologic's director of IT, had never even heard of the law.

In fact, no company's head of IT or training contacted for this article was familiar with the law, nearly three months after it went into effect — which begs the question of who really wanted the bill passed, if not the ones receiving the credit.

The ones who know, presumably, are those who lobbied for it: the 450 or so member companies of the Arizona Software and Internet Association. The group is primarily made up of software developers, IT consultants and IT service businesses. Many of these companies would get half of their training costs paid for by the government, according to the new law.

Who Gets the Credit?

At least six other states are working on IT training tax credit legislation, said Grant Mydland, director of the Technology Workforce Council, which is lobbying for such credits. But as all of these legislative bodies have started wrestling with their bills, they have found some very difficult devils lurking in the details.

At the national level, the tax credit under consideration is directed toward the individual, which is true of most education incentives under the U.S. tax code. The credit of as much as \$1,500 per person per year could go to either an employer or an employee.

At the state level, the emphasis is on corporations. The Arizona law, in fact, applies only to companies; an individual gets no additional break for tuition or training fees.

Defining Critical Skills

Since the technology tax credit legislation is meant to fill worker shortages, the tax credits should go only to people being trained in skills that are in short supply.

But how does the government make — and maintain — a list of critical IT skills? Who will decide when there are enough Java programmers or not enough database administrators? And what about training for computer skills that are needed for non-IT jobs?

In Arizona, that's where Steve Partridge, director of the office of workforce development at the state's Department of Commerce, comes in, trying to determine what skills are in demand.

"The most clever answer we got was, 'Look in the Sunday paper,'" Partridge says.

Eventually, he gave up. The regulations will define short supply as anything for which a particular company has a need. If a company sends someone for training, that will be evidence that the skill is in demand and deserving of the tax credit.

That will probably also be true at the federal level, says Ben Fallon, a spokesman for Rep. Jerry Weller. Fallon says it would be unwieldy to sort out true IT worker courses from others computer classes.

"It is very difficult to segregate when you're talking about the tax code," he says.

— David Bernstein

Where Credit's Due

Arizona's new IT training tax credit law is the first attempt in the nation to use tax breaks to encourage people to enter technology careers. By David Bernstein

TAX CREDITS

Key points: In the fight to close what some see as a skills shortage in IT fields, immigration visas have gotten most of the attention.

► Another tactic, giving tax credits for technology training, may be coming next. Arizona has just enacted such a law, and other states, as well as the federal government, may follow.

More online: To read the actual regulations adopted by the State of Arizona to help ease the cost of technology training for companies, go to www.computerworld.com/credits



STEVE PARTRIDGE of Arizona's Department of Commerce says the state's IT training tax credit won't apply to individuals changing careers.

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"There is already money available in loans and grants for people who want to change careers by going back to school," says Partridge in defense of this approach.

He also says the state can hold firms more accountable for creating the job for which they need training. Individuals may take the classes if their tuition will be reimbursed, but that's no guarantee that they will decide to take a job using their new skills.

But when the tax credit goes to the employer, Murphy claims, the lion's share of it will go to training workers who already work in IT. "The benefit will be to companies," he says. ▀

Bernstein is a freelance writer in Watertown, Mass.

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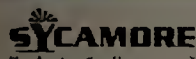
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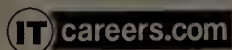
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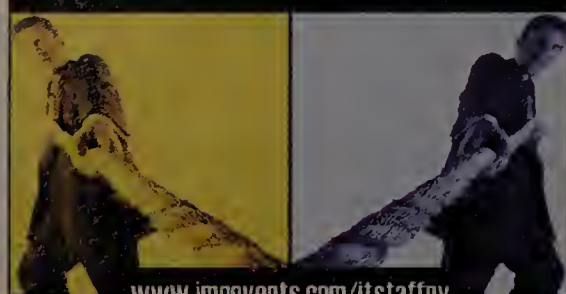
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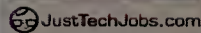
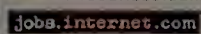
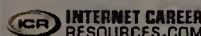
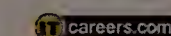
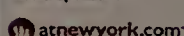
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Programmer Analyst wanted by a comp consulting services Co. in New Jersey. Must have Masters Degree in Comp. Engineering or Computer Science & 1 year experience. Respond to H.R. Dept., Laxmi Consulting Services, Inc., 200 Essex Turnpike, Suite 201, Iselin, NJ 08830

Programmer Analyst
Wanted by Information Technology Consulting Firm in Newington, CT. Must have B. S. in Comp. Science or Electronics or related field & 5 years of progressive experience in designing and developing ERP and business applications, customizing and interface various modules like accounts receivable, accounts payable, general ledger, etc. Respond to HR Manager, Infoware Systems, Inc., 705 N. Mountain Fld., Newington, CT 06111.

"Needed Jr. Web Developer to create Web related technical designs, collect data, create Web based reporting system using Java, HTML & Perl based programming. Must have High School plus 2+ years of experience in similar occupation. Send resume, in duplicate to HR Manager, System Edge USA, 811 Seftert Street, Philadelphia, PA 19128."

Database Administrators, Atlanta, GA. Database implementation & support to users on database apps & network administration across platforms using knowledge of Sun Solaris, HP-UX, IRIX, Linux, Windows NT & Novell NetWare. Req: BS or equiv. in a tech field & 2 years exp in system admin or network design. \$65K & up. Resumes to: V Ganupuru, Instcomp, Inc, 4501 Circle 75 Pkwy, Suite C-3140, Atlanta, GA 30339

Full-time Software Engineer responsible for analyzing user requirements, procedures and problems to automate processing or to improve existing computer systems using C/C++, CGI, UNIX, object-oriented programming, Database programming, Web Server, Java, SQL, MySQL and Analytical Skills. Set up and configuration of web site server. Must have a Bachelor's Degree in CS, related field, or foreign degree equivalent. Must have 1 yr of experience in job offered or a position with same duties. Salary: \$65,000/yr. Send resume to: Rachael Henderson, WellFound Technology, Inc., 1395 S. Marietta Pkwy., Bldg. 400, Ste. 208, Marietta, GA 30067.

Director, Pre Sales Technology. Manage pre-sales division, analyze customer environments & create solutions based on AMTrix products and services. Act as link between product management, development, & sales, & train sales/pre-sales team. Req: BS in comp sci or enggng & 3 yrs exp with sales & deployment of enterprise application integration software (AMTrix), including 1+ yr managing implementation projects. Resumes to: D Hull, Viewlocity, Inc, 3475 Piedmont Rd, Ste 1700, Atlanta, GA 30305

Systems Analyst needed for Tampa computer consulting firm M-F, 8-5, to analyze user requirements, procedures and problems. To automate processing and improve existing computer systems. Bachelor's degree in Computer Science or its academic equivalency required. Competitive Salary. Fax resumes to L. Mitchell 813-286-2264.

Director of Customer Service.
Responsible for pre-sales/post-sales and tech. support for Vista; sales process support/professional services; implementation and customization of the solution and on-site training; developing new training materials; support level 1&2 and software development. Must have BS/Comp. Sci. related or equiv. & 2 yrs. exp. in the job offered or 2 yrs. exp. as Soft. Eng. Send resume to HR, Allen Systems Group, Inc. 1333 Third Avenue South, Naples, Florida 34102. No calls.

Programmer/Analyst - Greenville, SC
Cobol, Delphi, Oracle 7.1, PL/SOL, Report Writer, IBM AS/400, PC, RS 6000, Unix, Windows. \$23/Hr & benefits; BS/BA & 2 years exp. in job offered. Mail resume to Kevin Davidson, OS Technologies, Inc., 7 N. Laurens St., Suite 1106 Greenville, SC 29601 or Fax: 864 370 2230.

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IT CAREERS

Diversity in Information Technology



The most sophisticated model for valuing diversity in corporate America consists of 14 different elements, ranging from race to geographic location to educational experience to gender. This expanded definition of diversity applies well to the information technology arena. In few other industries is the diversity of culture, gender, thought, ideas and approach to problems richer.

Take **PepsiCo**, the corporate giant owning Pepsi, Tropicana and Frito-Lay. Ron Porter, vice president of corporate human resources in Purchase, NY, says the approach to diversity is focused on three fronts. "We want to insure that we can understand and develop our business in an increasingly diverse marketplace," he explains. "We want to insure that we can retain and attract the best and brightest talent. And, finally, we want to insure that our partners that supply us goods and services are diverse. In the end it is about getting results and getting them in the right

way. We believe that our ability to leverage our diversity will be key to our success."

Bill James, senior manager of global diversity for Santa Clara (CA)-based **Applied Materials**, says his company continues to work with universities and professional organizations to recruit top candidates into the industry, building the pipeline of diversity, leadership and talent. "The face of **Applied Materials** is a mix of people from Asia, the Middle East, Africa, India and the Americas," says James. "When you walk through our facilities, you see diversity."

Mary Tetro, human resources vice president for **Pitney Bowes'** Tech Central, says valuing and expanding diversity is a business fundamental, something that spans decades of the company's history. "As we expand our understanding of globalization, we need to understand various cultures around the world and the business

approaches used in very different world regions," she says. Every business unit within **Pitney Bowes** develops a business plan that links directly to the business strategies and employee diversity. A measure is taken annually of accomplishment toward diversity goals, just as a measure is taken concerning revenue growth and operational efficiency.

In all three companies, valuing diversity is integral to the business process, whether in developing the latest technologies for route salesmen or the latest technology that will thrust the semiconductor industry forward another step.

What attracts diversity?

These leaders believe there are several simple steps to attracting a diverse workforce. The most important is being diverse. Just as important are the technological challenges and the pace of innovation.

For **PepsiCo**, that means partnering with the business leaders to provide technologies that help them manage a global consumer product business with a massive direct-store delivery system. This might mean working extensively with hand-held technologies that support the front-line route salesman in Des Moines, Iowa, or developing systems to support a manufacturing plant in London. "We are developing easy access to reliable, timely and accurate data for business decision-makers," says Porter. **PepsiCo** currently has 1,500 IT professionals and plans to hire more than 300 in 2001.

Pitney Bowes' Tetro says meaningful work is the basis for attracting and developing talented people. Just over a year ago, the company centralized its embedded IT functions in Tech Central, just one step in the critical enablement of technology to support the business. "The opportunities are enormous," she adds. "We are implementing SAP as our core enterprise software and are now planning the next implementation phases. Basically, we need people who can demonstrate that they have used their skills and competencies to produce results, who excel operationally, work on teams well, are committed to understanding diversity and who are adaptable and flexible."

Applied Materials makes the systems that make the products that change the world. "In order to maintain our position as the leader in the semiconductor industry, we need people with strong technical, analytical, teamwork and leadership skills," explains James. "If you want to work hard, work on cutting-edge technology and work with really bright people, this is the company."

For more job opportunities, turn to the pages of **ITcareers**.

- If you'd like to take part in an upcoming **ITcareers** feature, contact Janis Crawley, 650.312.0607 or janis_crawley@itcareers.net.
- Produced by Carole R. Hedden
- Designed by Aldebaran Graphic Solutions

Engineering

SOFTWARE ENGINEER

Provide functional and empirical analysis relating to the design, development, implementation, testing, and documentation of software for the organization's products and manufacturing system. Participate in the development of test strategies, devices, and systems.

BS in Computer Engineering or technical equivalent is required, as well as 3+ years of experience with C/C++.

CLINICAL/COMPUTER ENGINEER

Provide technical and clinical phone support to customers regarding the proper use of the equipment and resolve technical software or hardware problems for highly sophisticated diagnostic equipment. Respond to inquiries from hospital technicians using the equipment on a daily basis and to technical inquiries from Field Service Engineers who encounter technical issues in installing, testing and servicing this equipment.

BS in Computer Science, Biomedical Engineering or Technical equivalent is required. Excellent troubleshooting and communication skills are required, as well as knowledge of clinical cardiology.

TEST ENGINEER

As an experienced Test Engineer, you will work as part of a product development team, participate in design and development efforts, and be responsible for the verification and validation of the product. Strong interpersonal, technical, and organizational skills are required to ensure that the product meets all appropriate internal and external standards. Products are heavily software intensive, and knowledge of C/C++ programming is desired.

BS or MS in Electrical Engineering, Biomedical Engineering, or Computer Science required. A medical background is a plus, preferably with an emphasis on electrophysiology and hemodynamics. Experience with NTOS and/or SQL 7.0 is desirable. Basic knowledge of FDA GMP guidelines is required. The ideal candidate will have 3-5 years of Cath lab experience with extensive knowledge of electrophysiology, or 3-5 years of software development experience in the testing, debugging, and documenting the validation of C/C++ software.

What we offer: At GE Medical Systems Information Technologies, Inc. you'll enjoy the rewards of a competitive compensation, relocation, an outstanding benefits package and the professional advantages of an environment that supports your development and recognizes your achievements.

How To Apply: Please e-mail your resume to: **GE Medical Systems Information Technologies, Inc., Attn: HR, wm@prucka.com** or fax to: **(281) 340-5601**. Equal Opportunity Employer. M/F/V/D.



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Information Technologies, Inc.**

SAP Systems Integration America, LLC, a rapidly growing Systems, Application and Products in Data Processing ("SAP") consulting firm based in the Atlanta, Georgia area, has multiple openings for qualified executive, managerial, senior consulting, and consulting SAP professionals at various levels of responsibility at our location in Atlanta, Georgia.

Senior SAP Consulting Manager. Multiple openings for full-time Senior SAP Consulting Manager. Responsibilities include: manage design, development, implementation and customization of SAP software systems and SAP R/3; manage the planning and coordination of activities for projects to ensure that goals and objectives are met within specified time frame and budget; manage the production and negotiation of new project proposals to determine time frame, funding, implementation procedures and staffing requirements; manage the preparation and analysis of reports on SAP systems; manage the recruitment, hiring, firing and assignment of professionals and support personnel; manage the development of work plans detailing specific duties, responsibilities and procedures for implementing SAP software systems; and serve as corporate liaison with client. Travel as required to client sites throughout the United States Monday - Friday. Must have a Master's degree or foreign and/or educational equivalent with a specialization in computer science, business administration, engineering, or a related field and three (3) years of progressive experience in SAP, software engineering, systems analysis, SAP systems integration consulting, or a related field, or a Bachelor's degree as described and five (5) years of progressive experience as described. Must have proof of legal authority to work in the United States. If interested, submit resume to:

Ms. Ellie Koch
Director of Human Resources
SAP Systems Integration America, LLC
Five Concourse Parkway, Suite 925
Atlanta, GA 30328

Programmer Analyst (IBM Mainframe): Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance, support & conversion of large volume online transaction processing & batch application systems in a multi-h'ware/multi-s'ware environ. over centralized database systems using relational/hierarchical/network database mgmt systems, Third Generation Languages (3GLs), Fourth Generation Languages (4GLs), CASE tools & Transaction Processing Software. Reqs: B.S. in Comp. Sci., Math. Engr'g or Sci., business-commerce (or equiv.) & 1 yr exp in job offered or as Software Engineer/Systems Analyst. Must have appropriate combination of skills as follows: 1 of A & 1 of B & 1 of C; or 1 of A & 2 of B; or 1 of A & 2 of C. A includes: DBMS, DB2, IMS DB, IDMS DB; B includes Tools: CICS, IMS DC, IDMS DC, ADS/O, QMF VSAM, MF-Workbench; C includes Languages/CASE tools: TELON, IEF, ADW, CSP, APS. High mobility preferred (Multiple positions) 40 hrs/wk; \$62,561-\$75,000/yr. Report/Submit resume to Joseph Stratico, Dir., Pittsburgh/Allegheny Co. CareerLink, 425 Sixth Avenue, Ste. 2200, Pittsburgh, PA 15219. Web 163625.

SAP Systems Integration America, LLC, a rapidly growing Systems, Application and Products in Data Processing ("SAP") consulting firm based in the Atlanta, Georgia area, has multiple openings for qualified executive, managerial, senior consulting, and consulting SAP professionals at various levels of responsibility at our location in Atlanta, Georgia.

SAP Consultant. Multiple openings for full-time SAP Consultant. Responsibilities include: consult with our clients regarding the management of their SAP business systems; consult regarding: design, development, and implementation of customer specific software and multinational information systems; customization of SAP R/3 for clients; and configuration and application of SAP software for all areas of corporate operations on a fully-integrated, real-time online basis. Travel as required to client sites throughout the United States Monday - Friday. Must have a Bachelor's degree or foreign and/or educational equivalent with a specialization in engineering, computer science, or a related field and two (2) years of progressive experience in systems analysis, engineering, or a related field, or a Master's as described. Must have proof of legal authority to work in the United States. If interested, submit resume to:

Ms. Ellie Koch
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Information Systems

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GE Capital Commercial Finance provides innovative financing solutions to middle market customers. Currently, we have the following opportunity available in the High Point office.

Senior Systems Analyst

In this role you will provide technical and managerial support in resolving critical situations and project delivery as well as analyzing, designing and developing technical systems to address business needs. You will also support software development life cycle by working with end users and development team to provide system support, implementation consideration, scope of work study and resource management.

You should possess a BS in Computer Science or technical equivalent. 5 years of experience in the job required. Experience with the following programs required: AS/400, RPG, ILE RPG/400, JAVA 2, HTML, AS/400 Security, SQL, Embedded SQL, Client Access/400, SDA, QUERY/400, DB2/400, AS/400 DASD management, Hawkeye, XML and JAVA Script.

Forward your resume to: GE Capital Commercial Finance, Attn: HR Dept., P.O. Box 2730, High Point, NC 27261; fax (336) 889-0438. An Equal Opportunity Employer.

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President/CEO. Direct and manage SAP project operations; establish management goals and policies with respect to SAP operations; hire, fire and manage both SAP professional and non-professional staff. Serve as Chief Liaison with German parent company and multinational clients in Germany and the United States. Must have a Bachelor's degree or educational and/or foreign equivalent in computer science, business administration, engineering, or a related field and eight (8) years of progressive experience in SAP, systems analysis, engineering, or related field, or a Master's degree or educational and/or foreign equivalent in computer science, business administration, engineering, or a related field and six (6) years of progressive experience in SAP, systems analysis, engineering, or related field. Send resumes to:

Ellie Koch
Director of Human Resources
SAP Systems Integration America, LLC
Five Concourse Parkway, Suite 925
Atlanta, Georgia 30328

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQ/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK); High mobility preferred. 40 hrs/week, 8 am - 5 pm. \$62,561 - \$75,000 per year. Qualified applicants should contact or send resume to Mr. Anthony Gebicki, Manager, Westmoreland County CareerLink, 300 East Hillis Street, Youngwood, PA 15697-1808. Refer to Job Order # WEB 163621.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in SAP R/3, ABAP/4 and Oracle. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and five years experience as a software engineer or computer programmer, knowledge of SAP R/3, ABAP/4 and Oracle. Salary: \$66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mr. Thomas Dembosky, Indiana Job Center, 350 N. Fourth Street, Indiana, PA 15701-2000, Job No. WEB 164840.

Manager-Commerce Applications. Job location: Herndon, VA. Duties: Manage the design, set-up & implement. of e-commerce applications. Design & develop sales & procurement business communities using the internet between cos. (B2B) Design & develop Enterprise Applications Integration infrastructure using SAP, WebMethods, Java, XML & HTML/DHTML. Resp. for the upfront phases of proj. incl. business develop., arch. planning & conceptual integrity of appl. software. Provide detailed design specs. to client from a tech. & business standpoint. Create, eval. & manage projects plans, resources, budgets & timeframes. Train consultants in div. Requires: M.S. in Comp. or Info. Sci., Eng. or related field & 3 yrs. exp. in the job offered or 3 yrs. exp. as a Consultant, Software Eng. or Analyst. Exp., which may have been obtained concurrently, must incl.: 1 yrs. exp. in the designing, set-up & implementation of e-commerce appl. & 1 yr. exp. using SAP & Java. EOE. 40 hrs./wk.; 8:00 a.m. to 5:00 p.m. Salary: \$101,750/yr. Send resume (no calls) to: Diane Tuccito, AnswerThink, Inc., 817 W. Peachtree St., Suite 800, Atlanta, GA 30308. Must have legal auth. to work in U.S.

**Software
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Employee-owned Science Applications International Corporation (SAIC), a Fortune 500 company, provides high-technology services and products to government and commercial customers. SAIC and its subsidiaries have estimated annual revenues of over \$5.5 billion and more than 41,000 employees at offices in over 150 cities worldwide. Currently, we have multiple openings at various U.S. locations for **SOFTWARE ENGINEERS AND OTHER INFORMATION TECHNOLOGY PROFESSIONALS.**

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Applications Developers: Positions available in our New York, Chicago, San Jose, San Francisco and Nashville area offices. Will work with exceptional teams of computer and business professionals participating in full life-cycle development of distributed, object-oriented applications. Will design, develop and implement enterprise wide, distributed applications in various OO, client/server, n-tier environments against various relational databases. Will utilize OO languages, including Forte and Java and relational databases such as Informix, Oracle, Sybase, MS SQL Server, and DB2. Requirements: Bachelor's degree in Computer Science, Computer Engineering or Electrical Engineering or related field, or foreign equivalent. If interested, please email your resume and cover letter to jobs@thoughtworks.com.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Java, JavaScript, Oracle and Java Servlets. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Java, JavaScript, Oracle and Java Servlets. Salary: \$66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Ms. Mary Pat Curran, McKeesport/Allegheny Co. CareerLink, 345 Fifth Ave., McKeesport, PA 15132-2600, Job No. WEB 164854.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Progress, Oracle, Pro*C and Developer/2000. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Progress, Oracle, Pro*C and Developer/2000. Salary: \$66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mr. Anthony Gebicki, Westmoreland County CareerLink, 300 East Hillis Street, Youngwood, PA 15697-1808, Job No. WEB 164850.

Systems Analyst. Devise and modify procedures to solve business problems using COBOL, DB2, and CICS; evaluate and implement Mainframe systems with the objective of utilizing equipment capacity, increasing efficiency and reducing costs; also direct subsequent system design, implementation, and use of programs and projects. Must have a Bachelor Degree or foreign equivalent in Engineering. Must also have: 2 yrs exp. as e Programmer or Computer Systems Analyst & 2 yrs exp. in Mainframe Development using COBOL, DB2 and CICS (experience can be acquired concurrently). \$65,000/yr. M-F, 8:00 a.m. to 5:00 p.m. 40 hrs/wk. OT as req'd @ \$31.25/hr. Send resume/CV to The Philadelphia Job Bank, 444 N. 3rd St., 3rd Fl., Philadelphia, PA 19123. Refer to Job Order No. 1033129.

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SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in PowerBuilder, PFC, Oracle and Visual C++. Requirements: Master's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of PowerBuilder, PFC, Oracle and Visual C++. Salary: \$66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mr. Joseph Stratico, Pittsburgh/Allegheny Co. Careerlink, 425 Sixth Ave, Suite 2200, Pittsburgh, PA 15219, Job No. WEB164832.

SOFTWARE ENGINEER to design, develop test, support and implement application software for the telecommunication industry using VS COBOL II, IMS-DB, DB2, MVS/JCL, XPEDITOR, File-Aid, SYNC-SORT, PANVALET, OMF, SPUFI, COMPAREX and STS on an IBM-3090 and OS/390 platform. Require: M.S. degree in Computer Science/Engineering, Applied Mathematics, or a closely related field with two years of experience in the job offered or in the related occupation of Programmer/Systems Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Roz L. Alford, Principal, ASAP Staffing, LLC, 3885 Holcomb Bridge Road, Norcross, GA 30092; Attn: Job NM.

PROGRAMMER/ANALYST to analyze, design, develop and maintain internet/intranet application software in a client/server environment using Oracle, J2 EE, C++, VC+, CORBA, EJB, Designer 2000, Shell Script, Erwin, Java applets, JSP, AWT, PL/SQL, UML, OOAD technologies, Jackabson Use cases and Rumbaugh OMT on Windows NT and Sun SOLARIS platforms. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or in the related occupation of Software Engineer or Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Prasad R. Patry, Navtech, LLC, 2028 Powers Ferry Rd., Suite 170 A, Atlanta, GA 30339; Attn: Job GY.

SAP Systems Integration America, LLC, a rapidly growing Systems, Application and Products in Data Processing ("SAP") consulting firm based in the Atlanta, Georgia area, has multiple openings for qualified executive, managerial, senior consulting, and consulting SAP professionals at various levels of responsibility at our location in Atlanta, Georgia.

Associate SAP Consultant. Multiple openings for full-time Association SAP Consultant. Responsibilities include: consult with clients regarding the design, development, and implementation of sales and distribution of SAP systems including the design, development, and implementation of customer specific software and multinational information systems, on the customization of SAP R/3 for clients, and on the configuration and application of SAP software for sales and distribution operations on a fully-integrated, real-time online basis. Must have an Associate's Degree or foreign and/or educational equivalent with a specialization in business administration, computer science, engineering, or a related field and two (2) years of progressive experience as an SAP consultant. ~~Programmer Analyst, Software Engineer or a Bachelor's Degree as described;~~ must be willing to travel to client sites Monday-Friday. Must have proof of legal authority to work in the United States. If interested, submit resume to:

Ms. Ellie Koch
Director of Human Resources
SAP Systems Integration America, LLC
Five Concourse Parkway, Suite 925
Atlanta, GA 30328

Programmer Analyst - Oracle Specialist - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of large volume on-line complex integrated client-server based business, financial, banking, manufacturing and other commercial application systems in a multi-hardware/multi-software environment using centralized or distributed database systems using Oracle Relational Database Management Systems (RDBMS) and related software. Design of large application systems and databases in a Co-operative Development Environment (CDE); and analysis, design and development of applications using CASE (Computer Aided Software Engineering) tools. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 3 of B, or 2 of A and 2 of B. A) includes Oracle RDBMS, Oracle CASE tools (Designer, Dictionary, Generator), CDE 2, Oracle Financials, B) includes PRO* C, SOL*Forms, SQL*Reportwriter, SOL*Plus, SQL*Menu, PL/SOL. High mobility preferred. 40 hrs/week, 8 am - 5 pm. \$62,561 - \$75,000 per year. Qualified applicants should contact or send resume to Mr. Terry N. Faust, Manager, Washington County Team PA CareerLink, Millcraft Center, Suite 150LL, 90 West Chestnut Street, Washington, PA 15301-4517. Refer to Job Order #WEB 161174.

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Director Technical Services. Candidate will plan, direct, coordinate and supervise a team of technical support analysts who perform systems analyst functions to develop and implement resolutions for software development tools used for IBM AS/400 computers applications including: Microsoft Windows-based Graphical End User Query, Charting and Reporting; Client/Server middleware applications with Windows development tools such as Visual Basic, PowerBuilder, Delphi or Lotus Notes; Web based Internet and Intranet access; and graphic and development of Windows and Web applications with seamless access to native DB2/400 software. Lansa Inc. Oakbrook, Illinois. Lansa is an equal opportunity employer. Please email resume to hr@lansa.com or fax to 630-472-1004.

SOFTWARE ENGINEER to design, develop, implement and maintain web-based application software in a client/server environment using Java, JDBC, JSP, Oracle, Acute Reporting, Developer 2000 and Designer 2000 under Windows NT and UNIX operating systems. Require: B.S. degree in Computer Science, and Engineering discipline, or a closely related field with two years of experience in the job offered or as a Programmer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Prasad R. Patry, Navtech, LLC, 2028 Powers Ferry Rd., Suite 170 A, Atlanta, GA 30339; Attn: Job SK.

Lead Systems Developer needed in Tampa, FL., 8:00 am To 5:00 pm., 40 hrs. per week. Salary, \$42,000.00 per year. M.S. in Industrial Engineering req. Plans, develops, tests and documents computer programs, applying knowledge of programming techniques and computer systems. Evaluates user request for new or modified programs, such as financial, human resources management, clinical research trial results, statistical study of traffic patterns or analyzing and developing specification for bridge design, to determine feasibility cost and time/required, compatibility with current system and computer capabilities. Consults with user to identify current operating procedures and clarify objectives. Read manuals, periodicals and technical reports to learn using structured analysis and design. Submits plan to user for approval. Designs computer terminal screen displays to accomplish goals to user request. Enters program codes into computer. Leads small teams of developers and/or designer/developers. Send resume to: Agency for workforce Innovation/Bureau of Workforce Program Support, P.O. Box 10869, Tallahassee, FL. 32302. RE: JOFL#2169842.

Senior Member of Technical Staff - Technology Architecture: (two openings): Will define architecture for electronic communication systems & their features. Will gather & analyze product requirements to determine feasibility of product design within time & cost constraints; identify key business partners to design complete solution; guide and work with other engineers to perform software engineering design, coding, testing, & documentation for firm software systems in conjunction with hardware development for the electronic communications industry. Prepare proper design documentation for high & lower level product development process. Develop communication products using cutting edge software languages & tools including C, C++, Visual C++, JAVA, UML, ClearCase, & CVS, on SOLARIS, Windows, & Real Time operating systems including VxWorks. Analyze & implement different networking, communication and signaling protocols including IP, UDP, TCP, MGCP, H.323, RTP/RTCP & standards utilized in communication technology including codecs like PCM. Interface with customers to discuss product specifications & provides technical support. Provide feedback to senior management on competitive landscape in communication systems. Requires a M.S. degree in CS/CE, E.E or Electronics Eng., plus 2 yrs experience in job offered or 2 yrs experience as a Software Engineer - Electronic Communication Systems. Must also possess demonstrated expertise developing & integrating IP applications including IP based voice & data applications; and demonstrated expertise in design & implementation of communication networking products in a real-time, multi-threaded, embedded environment, as well as in Solaris & Windows environments. 40+ hrs/week; 9am to 6pm. (M-F); Salary \$85,000 - \$110,000/yr. Must have unrestricted authorization to work in U.S. Submit resume in duplicate to: Case #20012087, Labor Exchange Office, 19 Staniford St., 1st Floor, Boston, MA 02114. EOE

Programmer Analyst - PC Networking/Sys. Admin. & Appl. Integration: Utilizing knowl. of networking topologies, networking technologies & PC architecture install, configure & manage physically distributed computer networks & network operating systems. Provide user support, network troubleshooting, network expansion, printer services & back-up mgmt. Coordinate local & remote hardware & software configuration; implement & execute operations procedures & monitor system resource utilization; perform capacity planning. Interface main application environ. w/underlying networking software. Carry out performance tuning of network for user applications. Req: B.S. in comp. sci.-math/engr'g/sci./business-commerce or equiv. 1 yr exp in job offered or as programmer analyst/systems analyst. Must have appropriate combination of skills as follows: 2 of A & 2 of B & 1 of D; or 2 of A & 2 of B & 1 of C & 1 of D. A includes Operating Systems: Novell NetWare, Windows NT, OS/2, Windows 95, LAN Server, Banyan Vines, LANmanager, LANtastic.; B includes networking: IPX/SPX, TCP/IP, FTP, Windows for Workgroups, NetBIOS, X.25; C includes network mgmt: SNMP, LANalyzer, NetView, NetManager; D includes LAN technologies: Ethernet, Token Ring, FDDI. High mobility preferred. (Multiple positions) 40 hrs/wk; \$62,561 - \$75,000/yr. Report/submit resume to Thomas C. Dembosky, Indiana Job Ctr., 350 N. Fourth St., Indiana, PA 15701. Web 165853.

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SOL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SOL, SOL*FORMS, ESOL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK); High mobility preferred. 40 hrs/week, 8 am - 5 pm. \$62,561 - \$75,000 per year. Qualified applicants should contact or send resume to Mr. James J. Mackin, Manager, Beaver Falls Job Center/TPCL, 2103 Ninth Avenue, Beaver Falls, PA 15010-3957. Refer to Job Order #WEB 160562.

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The City of Little Rock, Arkansas, is seeking an experienced professional with proven leadership and management skills to serve as the Director of Information Technology. Little Rock (population 185,000; 550,000 metropolitan area) is Arkansas' capital. Reporting to the City Manager, the Director will plan and direct all data processing and telecommunications activities and services for the City. Experience in management or senior positions in a variety of service domains from operations to application support and development, networks, and telecommunications is imperative. Current salary range maximum \$100,904 with excellent executive benefits package. Qualifications: Bachelor's Degree in Computer Science or related; at least four years of experience in the management or administration of data processing operations; at least two years of supervisory experience including supervision of managerial personnel. Equivalent experience and training will be considered. Submit resumé to City of Little Rock Human Resources Department, 500 W. Markham, Little Rock, AR 72201-1428 or HR-Employment@littlerock.state.ar.us or FAX 501-371-4496. Resumes will be accepted until 5:00 p.m., May 18, 2001. Submitted resumes are subject to disclosure under Arkansas' Freedom of Information Act. Direct information requests to Curt Dawson, Employment Services Manager, 501-371-4590, or cdawson@littlerock.state.ar.us. More information available at www.accesslittlerock.org/HumanResources/

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SOFTWARE ENGINEER to design, develop, implement, test and maintain software systems for various business management applications in a client / server environment using SAP, ABAP, Visual Basic and Oracle on UNIX and Windows 95/98/NT platforms. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Salary: \$75,000 per year, 8:00 am to 5:00 pm, M-F. Apply by resume to: Rajender Gaddam, Director of HR, Orpine Enterprises, LLC, 1004 Crooked Creek Court, Mableton, GA 30126; Attn: Job SM.

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SOFTWARE ENGINEER (Peabody, Massachusetts): Design and develop Graphical User Interface (GUI) for desktop scanning paper management products. Integrate third party libraries and develop and improve new functionality for application. Integrate database into the system for document management. MINIMUM REQUIREMENTS: Bachelor's Degree in Computer Science or Engineering and 3 yrs experience in the job offered or 3 yrs experience which must include design and development of GUIs using Visual C++ in Windows 9X or Windows NT environment, document management systems and databases. Salary is \$72,500/yr for a 5 day 40 hr work week. Qualified applicants respond with resume in duplicate to Case No. 20010643, Labor Exchange Office, 19 Staniford Street, 1st Fl, Boston, MA 02114.

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Web infrastructure, automotive (773) 394-0402
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 Matt Hamblen (508) 820-8567;
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CALDERA SYSTEMS INC. 58	ELECTRONIC INDUSTRIES ALLIANCE 8	INSTITUTE OF ELECTRICAL	NEW YORK LIFE INSURANCE CO. 10	SMART DATA SYSTEMS 10	WAL-MART STORES INC. 42
	EMC CORP. 65	AND ELECTRONICS ENGINEERS INC. 32,79	NEW YORK STOCK EXCHANGE 48	SONY CORP. 32	WARNER BROS. 52
	ENTERPRISE MANAGEMENT	INTEL CORP. 7,10,62	NIKE INC. 25	SOUTHWEST AIRLINES CO. 12	WEATHER.COM 39
	SYSTEMS INC. 57	INTERNATIONAL	NISSAN MOTOR CO. 42	STANFORD UNIVERSITY 26	WINSTAR COMMUNICATIONS INC. 25
		CHAMBER OF COMMERCE 52	NOKIA CORP. 8	STAPLES INC. 12	WORLDCOM INC. 56
		INTERNATIONAL COMPUTER	NORDSTROM INC. 65	STORCOMM INC. 1	WYNDHAM INTERNATIONAL INC. 1
		NEGOTIATIONS INC. 52	NORTEL NETWORKS CORP. 14	SUN MICROSYSTEMS INC. 1,6,18,25,29	XM RADIO HOLDINGS INC. 20
		INTERNET CAPITAL GROUP 65	NORTHWEST AIRLINES INC. 52	39,48,56,62	YAHOO INC. 14,48,52
		INTERNET ENGINEERING TASK FORCE 58	NOVELL INC. 62	SYBASE INC. 62	YOUCENTRIC INC. 12
		INTERWOVEN INC. 39	OFFICE OF MANAGEMENT AND BUDGET 14	SYMBOL TECHNOLOGIES INC. 79	
		JUNKBUSTERS CORP. 36		SYNCHRONY COMMUNICATIONS INC. 12	
		KPMG CONSULTING INC. 14		SYNIX CORP. 56	
		LEGATO SYSTEMS INC. 62		TATUM CFO PARTNERS LLP 6	
		LM ERICSSON TELEPHONE CO. 6		TECHNOLOGY 4 HEALTHCARE LLC 1	

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Pocket PC

11 million units in the hands of consumer and business users today. But according to Gartner Inc. in Stamford, Conn., the Pocket PC has made significant inroads in corporations, which buy them by the carload.

"The Pocket PC, especially Compaq's iPaq, seems to be capturing the hearts and minds of business decision-makers," said Bob Egan, an analyst.

Enterprise users interviewed by *Computerworld* said the decision about which handheld to deploy depends on such factors as the application, the need to tie into back-end systems and the type of user.

Wyndham International Inc. has begun installation of a wireless check-in system based on the Palm OS and hardware. But Mark Hedley, the Dallas-based hotelier's senior vice president and chief technology officer, said he would have preferred the Pocket PC.

Wyndham's third-party developer, Micros-Fidelio in Naples, Fla., chose the Palm-based system prior to last year's introduction of the Pocket PC. In Hedley's view, that was unfortunate.

"I would rather have a Pock-

et PC," he said. "It's more functionally rich. The Windows CE operating system has more to offer today than the Palm, which I find very limiting."

Niraj Patel, CIO at the GMAC Commercial Mortgage division of General Motors Corp., plans to field about 2,000 Pocket PCs to automate inspection of the approximately 36,000 buildings on which the company holds mortgages. Patel said he chose the Pocket PC over the Palm to replace a paper-based inspection system — with inspection forms running between 12 and 30 pages — because in his view, the Pocket PC provides "a more robust platform with greater functionality than the Palm."

Patel said he also found it easy to hook the Pocket PC into the company's legacy back-office systems. "That's when you get the real value out of them," he said.

Palm Applause

Yet the Palm clearly has its supporters as well.

Ed Baer, CIO at *The Atlanta Journal-Constitution*, said he chose Palm-powered handhelds for three newspaper delivery and circulation management applications he will fin-

ish fielding next month. Baer said it was the Palm's inherent simplicity that swayed him.

Baer has developed a delivery-route system for Palms that provides drivers with house-by-house and turn-by-turn driving directions. He opted for the Palm because his organization "wanted something that was easy to use, intuitive and fast," he said.

Jeff White, a biomedical engineer at Miami Children's Hospital, also praised the simplicity of the Palm. He said he selected the Palm to automate patient-tracking information in the hospital's cardiac unit because of its ease of programming. White said he developed the appli-

cation himself on an emulator from the Palm Web site. "I knew nothing about Palm until I downloaded the emulator," he said, adding that medical personnel find the Palm interface easy to use.

Despite the early success of the Pocket PC, neither analysts nor users expect Microsoft to dominate the handheld market the way it does the desktop. Gartner expects Palm to still command 50% of the market in two years, while IDC in Framingham, Mass., predicts that the Pocket PC will gain 38% of

the handheld market by 2004.

"We know we are at just the beginning of this battle. This is a 25-year game," said Gabriel Acosta-Lopez, senior director

of platform development at Palm. "We are not in the business of providing people with a PC in their pocket. This is a whole new experience." ▀

The Handheld Wireless Battlefield

Both Palm and Microsoft see the diversity of wireless connections as key to the success of their rival handheld product lines.

Ed Suwanjitar, product manager at Microsoft's mobile devices division, calls the ability to provide users with all kinds of wireless connectivity "the key battlefield and the one key criterion that will determine our success or failure." Microsoft and its partners offer a variety of wireless options, including cellular modems that are capable of working with both U.S. and European mobile phone systems.

Microsoft and its partners also offer IEEE 802.11b-compliant wireless LAN connection options, as well as add-on cards for the high-speed (128K bit/sec.) Ricochet service available from San Jose-based MetriCom Inc.

Except for rugged PCs manufactured by Symbol Technologies Inc. in Holtville, N.Y., Palm doesn't offer wireless LAN connectivity. But according to Alan Kessler, Palm's chief operating officer for platform and products, that's a shortcoming the company intends to fix. The 802.11b protocol "is im-

portant in enterprise uses," he said, "and we and our partners are developing [802.11b] add-ons."

John Cook, Palm's senior director for product marketing, said the firm plans to offer 802.11b modems as add-ons in a "sled" (a receptacle for the handheld and its accessories).

Both companies also view Bluetooth-enabled short-range networking devices as a natural fit for their mobile products. Cook said Palm will offer Bluetooth connectivity as a sled add-on by the end of the year; Kessler predicted availability of hardware with a built-in Bluetooth module within a year.

Although Microsoft's desktop division has dropped Bluetooth support in its upcoming release of Windows XP, the Pocket PC unit still backs the technology. Microsoft's products will come later than those from Palm, however. Douglas Dedo, a group product manager in Microsoft's mobile devices division, said he expects the company's partners to start offering Bluetooth connectivity between 2002 and 2003.

— Bob Brewin

Continued from page 1

Java

systems Inc.'s Java 2 Micro Edition for mobile development projects. Developers' second choice was Palm Inc.'s operat-

ing system (25%), followed by Microsoft Corp.'s Windows CE (22%).

Users say Java enables them to write code that can run on numerous hardware devices; Microsoft advocates, meanwhile, say coding for the Windows CE operating system in

languages like Visual C++ and Visual Basic makes development easier.

Later this year, Purchase, N.Y.-based MasterCard International Inc. plans to roll out wireless access to its e-wallet portal, an application that allows cardholders to store credit card numbers and shipment and billing information online. The Brodia Group in San Francisco developed the Java-based application for MasterCard. The start-up says support is forthcoming for the Palm OS but not for Windows CE.

"On the server side, it's all Java," said Brodia Chief Technology Officer Paul Guthrie. "On the client side, we'll support whatever the consumer demands, but today, there's no traction on Windows CE devices."

The Home Depot Inc. in At-

lanta developed a custom-built wireless application using Microsoft's Visual Basic six years ago. The application, which allows its retail outlets to do product ordering and inventory updates from store floors, was rolled out to all 1,200 stores two years ago. But henceforth, Home Depot plans on using Java for its wireless application development projects.

"We want to run Java, as opposed to something proprietary like [Visual Basic]," said Curtis Chambers, senior manager of architecture at Home Depot. "We're rolling out Linux-based clients, and you can't just port VB over to Linux."

The assurance that the application will run on different hardware platforms led General Motors Corp. to begin exploring Java-based applica-

tions for its OnStar in-vehicle communications system, said Mike Hichme, a lead systems engineer at GM. "Java has a lot of benefits from the capability of downloading an application that can run on any device, from a hardware-agnostic standpoint," Hichme said.

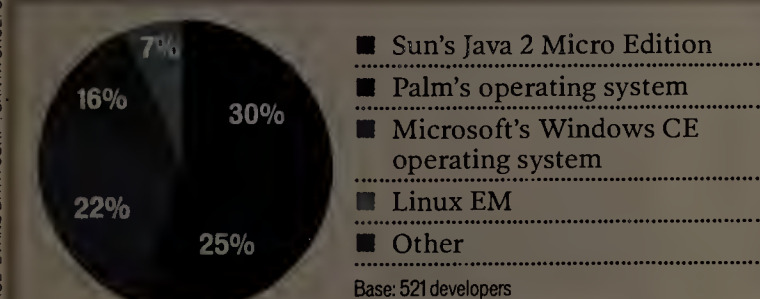
But Microsoft is by no means out of the running.

To get access to wireless reports and alerts from its e-commerce site onto Research In Motion Ltd. BlackBerry pagers, Mark Sundt, CTO at Haystack Toy Co. in St. Louis, built an application using Visual Basic and Active Server Pages.

"It's a bake-off between developing faster in VB or doing harder coding in Java," said Sundt. "But our expertise is primarily on the Microsoft platform." ▀

Developers' Choice

Which platform will you use for wireless development in the next 18 months?



FRANK HAYES/FRANKLY SPEAKING

Playing by the Rules

GOT COOKIES? The U.S. Mint does. So do (or did) NASA, the General Services Administration and the Treasury, Energy, Interior, Education and Transportation departments, according to a preliminary audit released by the Office of the Inspector General last week. Trouble is, in most cases, those cookies on government Web sites were unauthorized — they violated specific, unambiguous federal rules (see story, page 21).

And nobody's exactly sure how it happened or how widespread the problem is. We can make some pretty good guesses, though.

After all, we're technical people. We know how techies think. Cookies are technology. Technology is a good thing, and it's much more important than rules. And if rules get in the way of what we're trying to accomplish with technology, well, which is more important: rules or getting the job done?

In some cases, outside contractors may not even have known about the no-cookies rules. And at one site that was run by a private contractor, the contractor's agreement even gave the private company rights to all the data collected from cookies.

The rules just disappeared from their radar. They were inconvenient, and in the rush to the Web, they just got brushed aside.

No, don't snicker at those irresponsible government techies. You've probably got cookies you don't know about, too. More to the point, you've probably got rules being brushed aside in ways that could threaten your company much more than any unauthorized government cookie could.

And those rules matter.

Corporate IT shops are now neck-deep implementing and maintaining systems that involve contracts and legal requirements and bureaucratic regulations — systems like customer relationship management, supply chains and online stores.

We build this stuff fast, then hack and tweak it to make it work. And we keep hacking and tweaking to get it working better. Unfortunately, we have no way of knowing how many of those hacks and tweaks violate contracts, laws, regulations or our companies' public statements.

Cookies? They're the least of the problem, the readily visible tip of the iceberg. Users who are

really concerned about cookies can easily set their Web browsers to flag cookies when a Web site uses them. Those users probably knew about the cookie-laden government Web sites long before the inspector general did.

And if some self-appointed inspector general wannabe catches our Web sites trying to set cookies when our published privacy policies say we don't use cookies, we'll look bad. But we'll probably be able to correct the problem pretty quickly.

The real risk comes with the other rules we ignore. Privacy rules. Security rules. Data handling rules. Regulatory requirements. Contract provisions.

Break those rules and your company could end up in court. Break them badly enough — or with bad enough results — and things could get *really* ugly.

And don't think code reviews during development are enough to make sure rules are followed. Remember, we're rebuilding and reconfiguring these systems on the fly every day. Unless *everyone* understands *all* the rules, you could be on the receiving end of fines, penalties, lost customers or lost court cases.

Maybe it's time to do an audit of your own. Find out how many of your people know the rules, especially the nontechnical rules, that they have to follow. And find out how deep their commitment

is to following those rules. And how much re-educating you need to do.

Because you've got rules, and you'd better make sure they're followed. ▀

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

*Don't think
code reviews
are enough to
make sure
rules are
followed.*



SHARK TANK

SPORTS NEWS Web site depends on an uninterrupted feed from wire services via satellite. When stories arrive garbled or incomplete, editor seeks out IT pilot fish for an explanation. Fish already knows the problem: Major solar flares and sunspots are disrupting satellite communications. "At this time of day for the next few days, there will be problems with the service due to sunspots," he explains. "Well," says the editor, "what can we do about that?"

MANAGER sends plaintive request to IT support desk: "My Notes e-mail doesn't go back in time enough. Can you help me?"

SENIOR PROGRAMMER pilot fish finishes up a project for a client — an optimized C compiler — and sends it on its way, then files the usual deliverables report with his boss. Boss calls back to ask for details on the compiler: "Did you send the hard copy or the soft copy?"

USER E-MAILS support pilot fish: "Most of my deleted files are gone. Can you help?"

NETWORK ADMIN is accosted by an agitated user standing outside his cubicle. "I haven't had voice mail for three weeks, and I keep getting complaints from people who can't get hold of me," user says. "Has this been

reported to the help desk?" fish asks. "No," says user, "was I supposed to report it?"

INSURANCE AGENT on the road calls help desk to complain that his laptop isn't working. "These things are so wimpy," he grumbles. "It broke after I dropped it off the bar."

LIGHTNING STRIKE knocks out corporate voice-mail system, so pilot fish sends out a companywide e-mail to inform everyone. User fires back a question: "Is that why I can't save my files in Excel?"

AD AGENCY CEO is working from home on her laptop one Sunday for the first time and can't connect to the corporate server. After an unsuccessful half-hour of troubleshooting with the office IT manager pilot fish, CEO complains that her ear hurts from having her cell phone glued to it. "Call me back on my home line," she says. "But your home line will be tied up with the modem," fish points out. "Do I have to plug the laptop into the phone line to dial in to the company server?" asks CEO.

Plug in right here: sharky@computerworld.com. You score a snazzy Shark shirt if your true tale of IT sees print — or if it shows up in the daily feed at computerworld.com/sharky.

The 5th Wave



"A centralized security management system sounds fine, but then what would we do with the dogs?"

DATA STORAGE IS NO LONGER *THE SILENT PARTNER.*

IT'S THE ONE SCREAMING FOR YOUR ATTENTION.



fig. 1.1: Storage screaming for your attention (metaphor)

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